



# **Wireless-N 4-Port Router**

**UGL2430-RTH**

**User's Manual**



### ***FCC Warning***

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which
- Consult the dealer or an experienced radio/TV technician for help. the receiver is connected.

**FCC Caution:** Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### **IMPORTANT NOTE:**

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of about eight inches (20cm) between the radiator and your body. This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter. IEEE802.11b or 802.11g operation of this product in the USA is firmware-limited to channels 1 through 11.

### **Notice**

Changes or modifications to the equipment, which are not approved by the party responsible for compliance could affect the user's authority to operate the equipment. Company has an on-going policy of upgrading its products and it may be possible that information in this document is not up-to-date. Please check with your local distributors for the latest information.

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### **Trademarks:**

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## Revision History

Revision

History

V2

2<sup>nd</sup> Release

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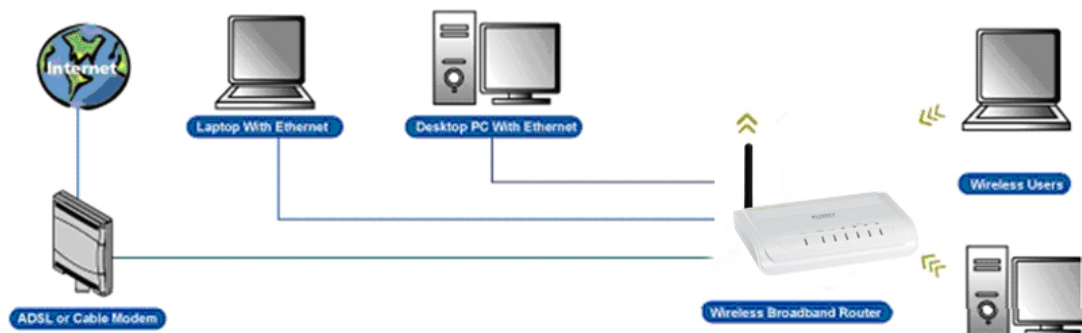
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## 1. Introduction

This Wireless Broadband Router is a draft 802.11n compliant device that provide faster and farther range than 802.11g while backward compatible with 802.11g and 802.11b devices. This Router uses advanced broadband router chipset and wireless LAN chipset solution let you enjoy high-speed Wired and Wireless connection. Simply connect this device to a Cable or DSL modem and then you can share your high-speed Internet access with multiple PCs at your home. It creates a secure Wired and Wireless network for you to share photos, files, video, music, printer and network storage. This device also supports the latest wireless security features such as WEP, WPA, WPA2 and WPS to prevent from unauthorized access.



### 1.1 Features

- Compliant with IEEE 802.11n draft 2.0 standard
- Backward compatible with IEEE 802.11b/g
- Supports NAT, NAPT, DHCP Server/Client
- Supports VPN pass through - IPSec, PPTP, L2TP
- Supports Virtual Server / Port Trigger
- Supports Virtual DMZ Host, DNS Proxy, DDNS, UPnP
- Supports 64/128-bit WEP Data Encryption
- Supports WPA / WPA2 / WPS / 802.1x Authentication
- Supports WDS (Wireless Distribution System) mode
- Supports Quality of Service (QoS) – WMM
- Supports MAC Filter, Client Filter, URL/IP Filter
- Supports Hacker Pattern Detection
- Supports Auto-crossover (MDI/MID-X) function
- Supports software upgrade through Web
- Friendly web-based GUI Configuration and Management

## 1.2 Package Contents

- One Wireless AP Router with 1 antennas
- One External Power Adapter
- One CD-ROM (user's manual)
- One RJ-45 Ethernet Cable

## 1.3 System Requirements

- Computers with an installed Ethernet adapter.
- Valid Internet Access account and Ethernet based DSL or Cable modem.
- 10/100Base-T Ethernet cable with RJ-45 connector.
- TCP/IP protocol must be installed on all PCs.
- System with MS Internet Explorer ver. 5.0 or later, or Netscape Navigator ver. 4.7 or later.

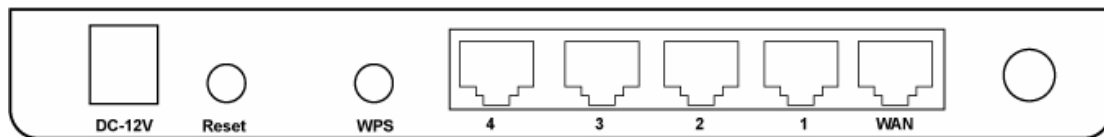
## 1.4 LEDs Indication & Connectors of Wireless Router

### Front Panel LEDs Indication



LED	Light Status	Description
Power	On	Wireless Router is powered on.
	Off	Wireless Router is powered off.
WLAN	Slow Blinking	<b>WLAN is successfully connected.</b>
	Blinking	<b>Data is being sent or received.</b>
WAN	On	WAN port is successfully connected
	Blinking	Data is being sent or received.
LAN (1, 2, 3, 4)	On	LAN port is successfully connected.
	Blinking	Data is being sent or received.

## Back Panel Connectors



Button/Port	Description
Reset	Reset configurations to default. You would use the reset button only when a program error has caused your 11n AP router to hang. Press the button and hold for 10 seconds.
WPS	Click WPS button about 2-3 seconds while you are connecting a PC or wireless adapter with WPS function (you must enable WPS/PBC function).
LAN (1x, 2x, 3x, 4x)	Ethernet RJ-45 connector, connect to PC with a RJ-45 Ethernet cable.
WAN	Ethernet RJ-45 connector, connect to WAN access device, such as the Cable modem or ADSL modem.
DC-12V	Power connector, connect to the power adapter (DC-12V) packaged with the AP router.

### 1.5 Installation Instruction

- 1) Power off 802.11n AP Router and DSL/Cable modem.
- 2) Connect computer to the LAN port on the Wireless Router with Ethernet cable.
- 3) Connect the DSL or Cable modem to the WAN port on the Wireless Router with Ethernet cable.
- 4) Power on DSL or Cable modem first, then connect power adapter to the power jack on the rear panel of Wireless Router and plug the power cable into an outlet.
- 5) Check LEDs.
  - a) Once power on Wireless Router, Power LED should be on.
  - b) LAN LED should be on for each active LAN connection.
  - c) The WAN LED should be on when the DSL or cable modem is connected.

**Warning:** Only use the power adapter is provided from this package, use other power adapter may cause hardware damage

## 2. PC Configuration

To communicate and configure 802.11n AP router, the PC on your LAN must install TCP/IP protocol. Make sure the TCP/IP protocol of the PC is configured for Obtain IP address from DHCP and is connected to LAN (Ethernet) port of the AP router. In doing so, the PC obtains an IP address of 192.168.1.1 from 802.11n AP router.

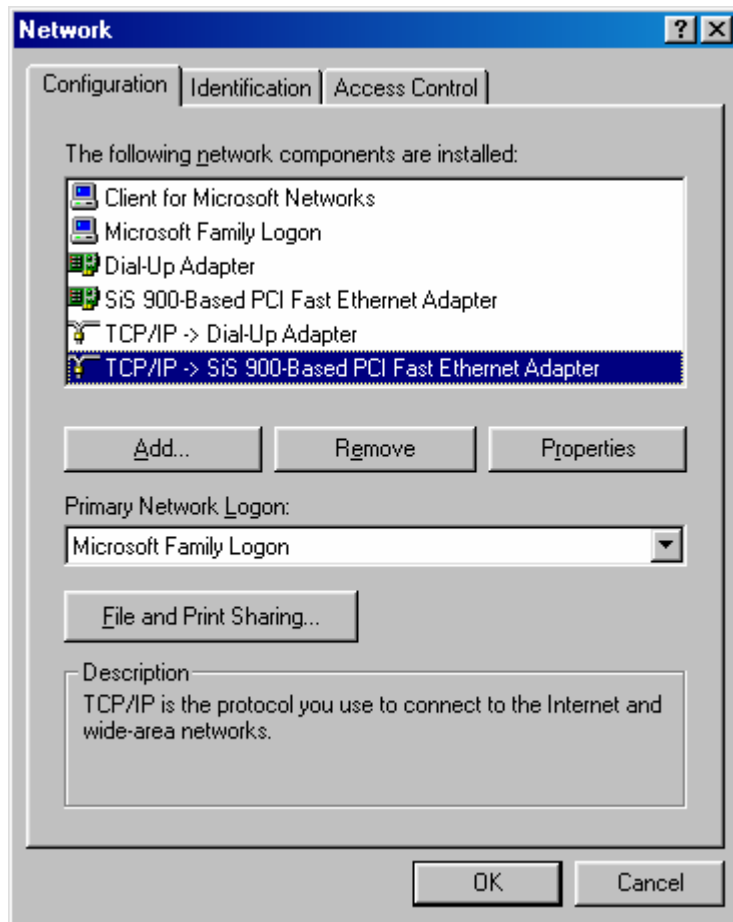
The 802.11n AP router assumes an IP address of 192.168.1.1 without network connectivity. This IP address is used for communicating with the 802.11n AP router via the web UI or Telnet, with the PC connected to the LAN port.

The 802.11n AP router assumes a DHCP IP address on the WAN side if connected to the network. In this case user can communicate with the same IP address 192.168.1.1 with PC connected to the LAN port. PC in the network can communicate with the DHCP IP address allocated to 802.11n router.

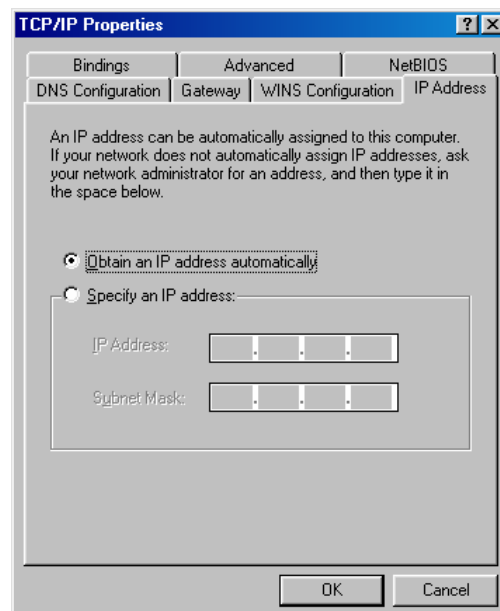
### 2.1 TCP/IP Networking Setup

#### *Checking TCP/IP Settings for Windows 9x/Me*

a) Select “**Start → Control Panel → Network**”, the window below will appear,



b) Click **“Properties”**, the window below will appear and then click **“IP Address”** tab,

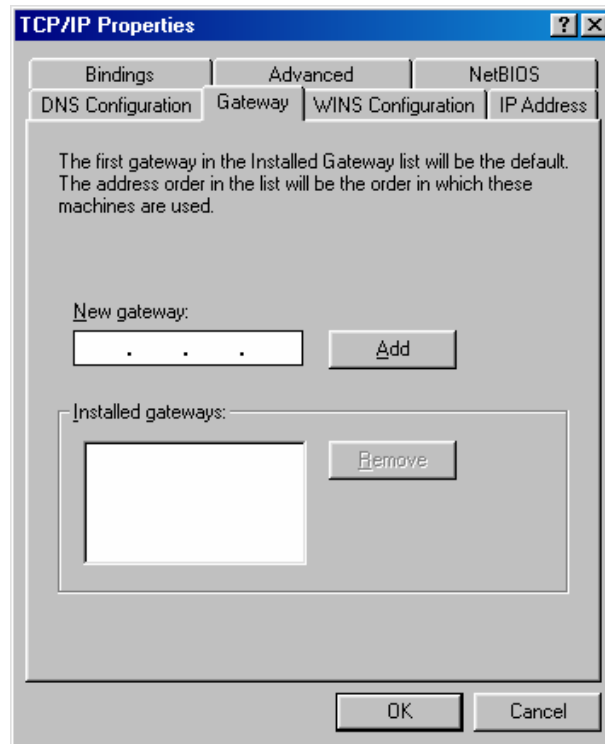


- If you decide to use DHCP, select **“Obtain an IP address automatically”**, then click **“OK”** to confirm your settings. Once you

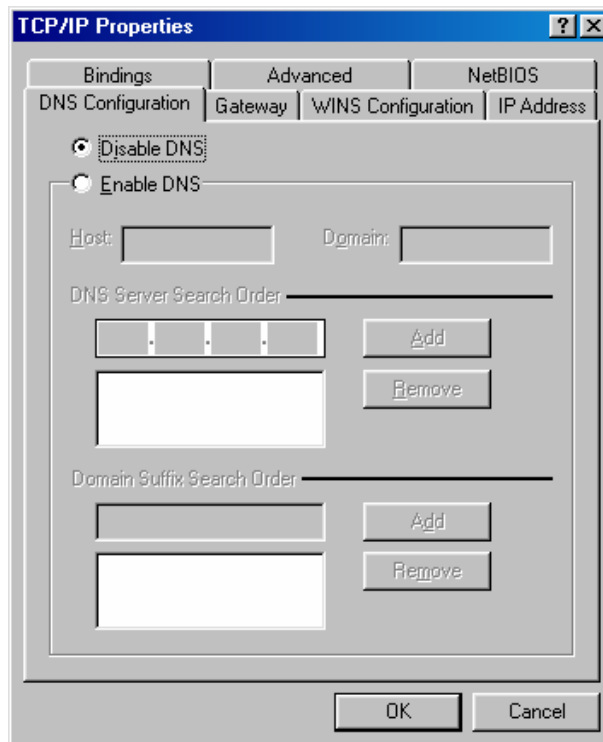
restart your system, Wireless Router will obtain an IP address for this system.

- If you decide to use fixed IP address for your system, select **"Specify an IP address"**, and make sure that **IP Address** and **Subnet Mask** are correct.

c) Select **"Gateway"** tab and enter correct gateway address in **"New gateway"** field, then click **"Add"**,

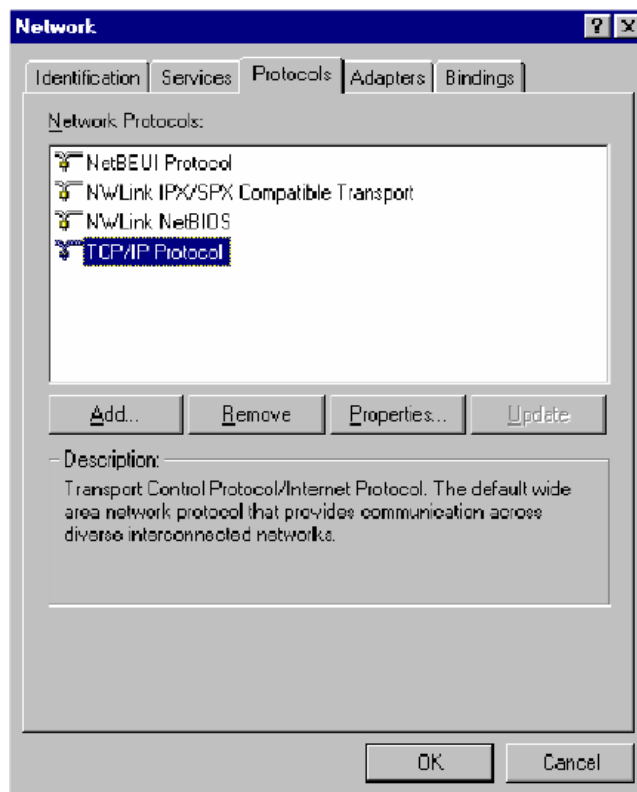


d) Select **"DNS Configuration"** tab and make sure select **"Enable DNS"**, enter the DNS address provides from your ISP in the **"DNS Server Search Order"** field, then click **"Add"**,



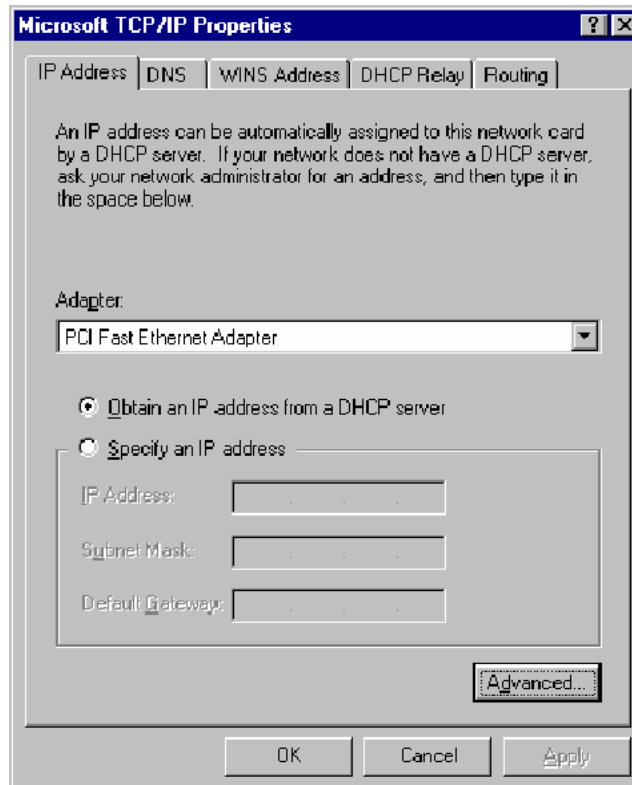
### Checking TCP/IP Setting for Windows NT4.0

a) Select "Control Panel → Network", window below will appear, click "Protocols" tab then select "TCP/IP protocol",



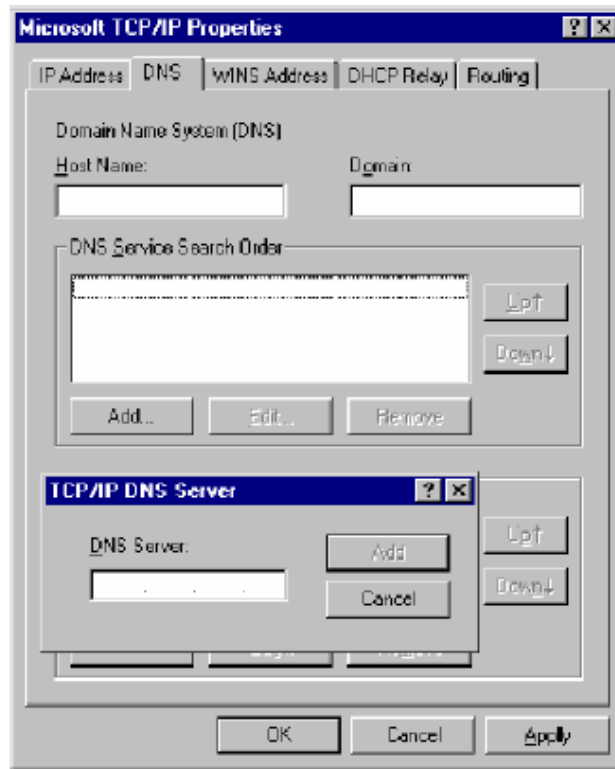
b) Click "Properties", window below will appear.





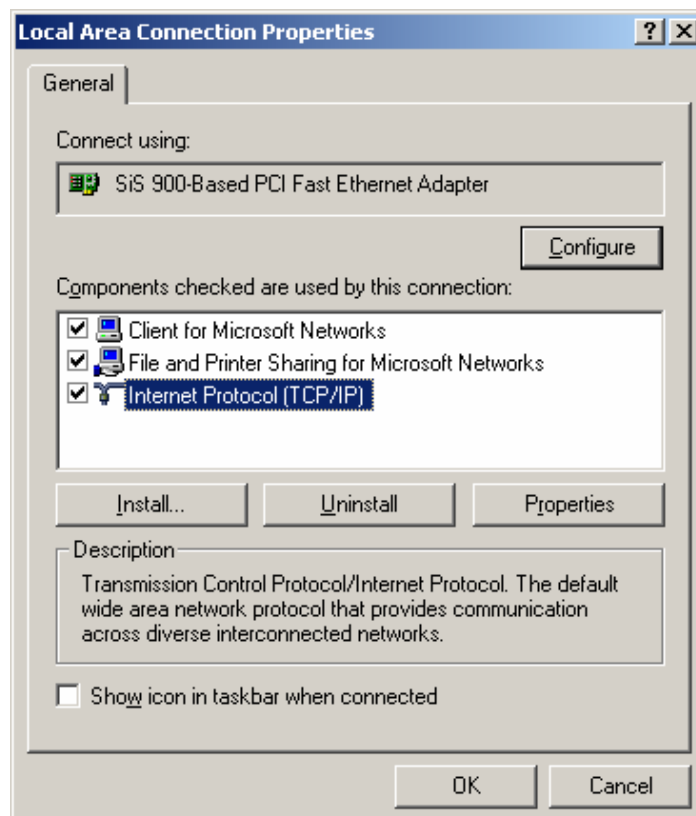
- Select the network card on your system from "Adapter" field.
- If you decide to use IP address from Wireless Router, select "Obtain an IP address from a DHCP server".
- If you decide to use the IP address you are desired, select "Specify an IP address". Make sure enter correct addresses in "IP Address" and "Subnet Mask" fields.
- You must set Wireless Router's IP address as "Default Gateway".

c) To enter DNS address is provided from your ISP. Select "DNS" tab, click "Add" under "DNS Service Search Order" list, then enter DNS Server IP address in "TCP/IP DNS Server" window and click "Add".

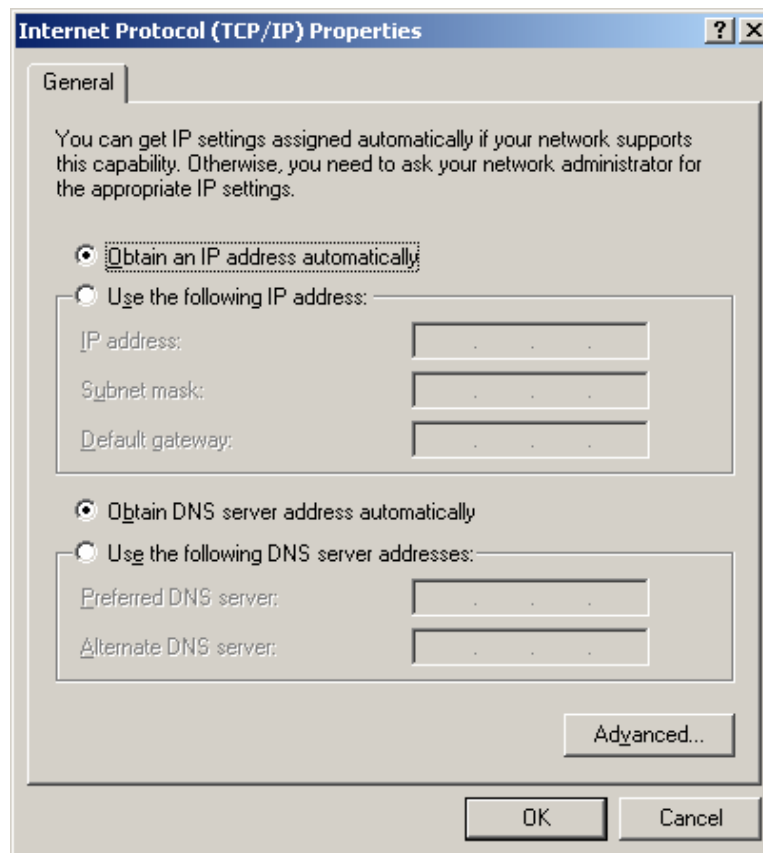


### *Checking TCP/IP Settings for Windows 2000*

a) Select "Start → Control Panel → Network and Dial-up Connection" and right click "Local Area Connection" then click "Properties",



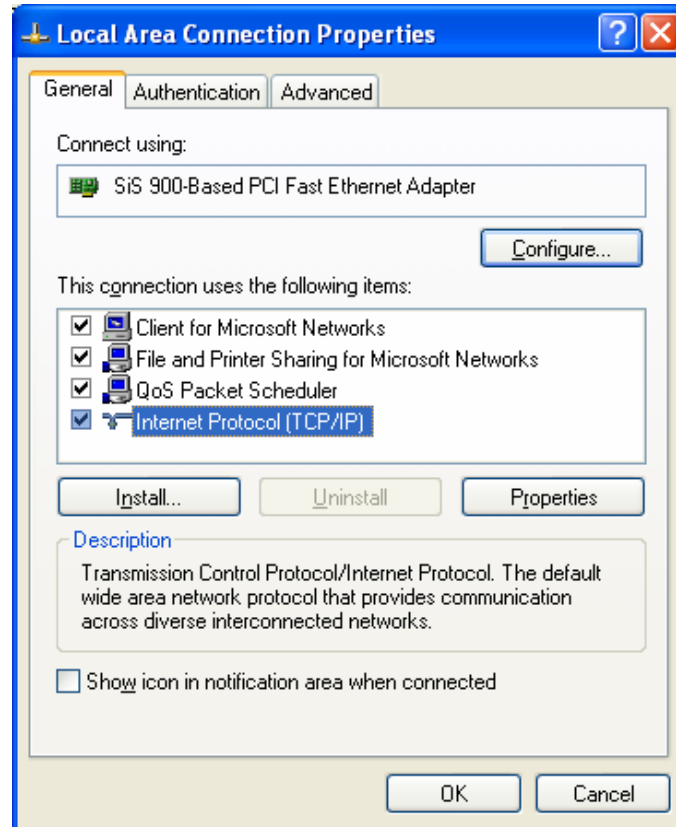
b) Select the "Internet Protocol (TCP/IP)" for the network card on your system, then click "Properties", window below will appear.



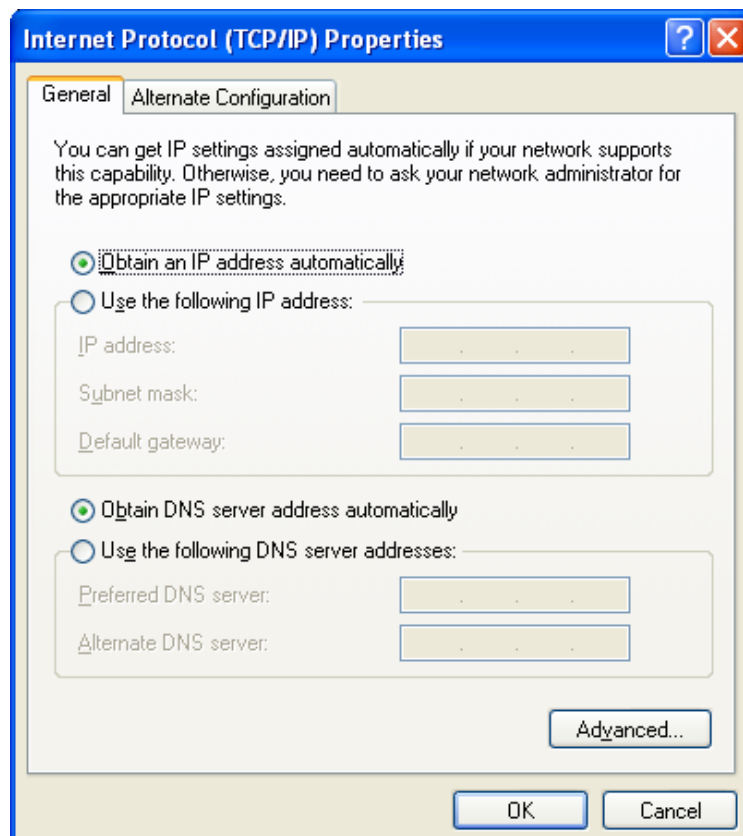
- If you decide to use IP address from Wireless Router, select "Obtain an IP address automatically".
- If you decide to use the IP address you are desired, select "Use the following IP address". Make sure enter correct addresses in "IP Address" and "Subnet Mask" fields.
- You must set Wireless Router's IP address as "Default Gateway".
- If the DNS Server fields are empty, select "Use the following DNS server addresses" and enter the DNS address is provided by your ISP, then click "OK".

### *Checking TCP/IP Settings for Windows XP*

a) Click "Start", select "Control Panel → Network Connection" and right click "Local Area Connection" then select "Properties", window below will appear.



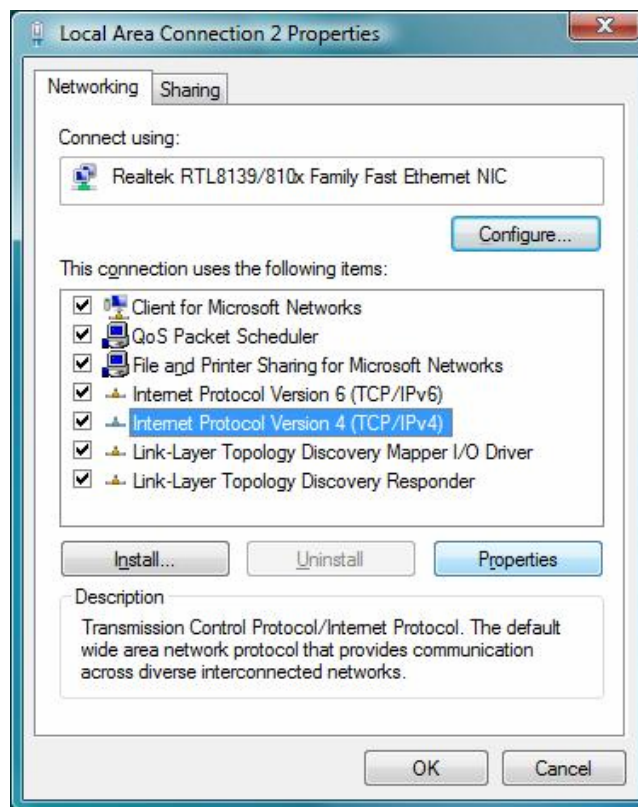
b) Select "Internet Protocol (TCP/IP)" then click "Properties", window below will appear.



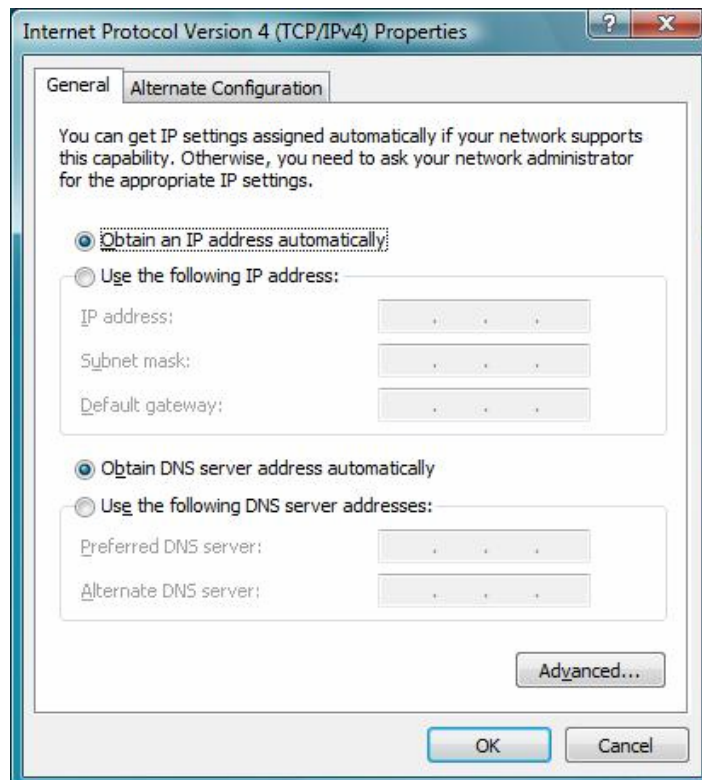
- If you decide to use IP address from Wireless Router, select "Obtain an IP address automatically".
- If you decide to use the IP address you are desired, select "Use the following IP address". Make sure enter correct addresses in "IP Address" and "Subnet Mask" fields.
- You must set Wireless Router's IP address as "Default Gateway".
- If the DNS Server fields are empty, select "Use the following DNS server addresses" and enter the DNS address is provided by your ISP, then click "OK".

### *Checking TCP/IP Settings for Windows Vista*

a) Click "Start" → "Control Panel" → "Manage Network Connections" and right click "Local Area Connection" then select "Properties", window below will appear.



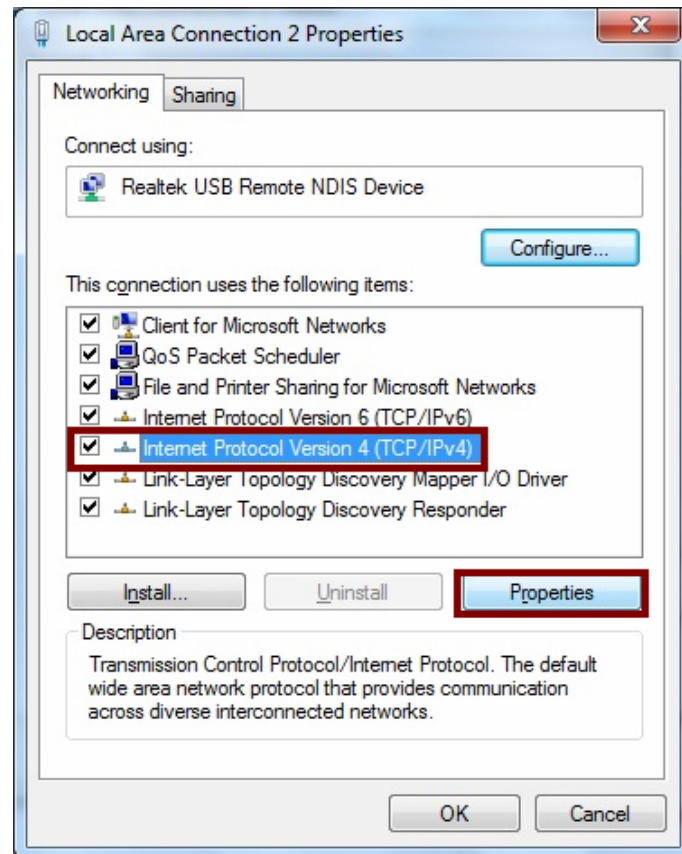
b) Select "Internet Protocol (TCP/IP)" then click "Properties", window below will appear.



- If you decide to use IP address from Wireless Router, select "Obtain an IP address automatically".
- If you decide to use the IP address you are desired, select "Use the following IP address". Make sure enter correct addresses in "IP Address" and "Subnet Mask" fields.
- You must set Wireless Router's IP address as "Default Gateway".
- If the DNS Server fields are empty, select "Use the following DNS server addresses" and enter the DNS address is provided by your ISP, then click "OK".

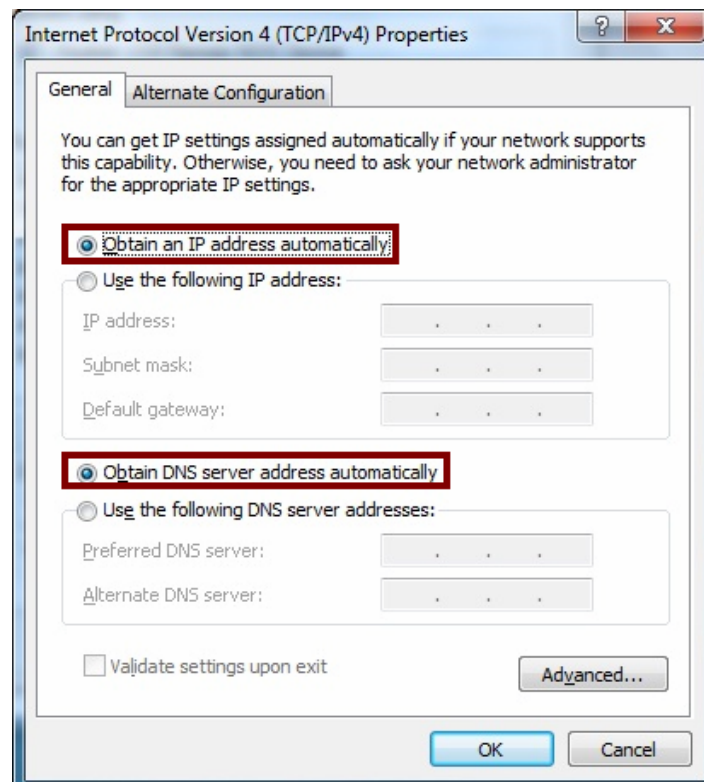
### *Checking TCP/IP Settings for Windows 7*

a) Click "Start" → "Control Panel" → Double-click Network and Sharing Center icon → Select "Local Area Connection #". (Local network your ADSL hooked up with) → Select "Properties" → Select "Internet Protocol Version 4 (TCP/IPv4)" then click "Properties"



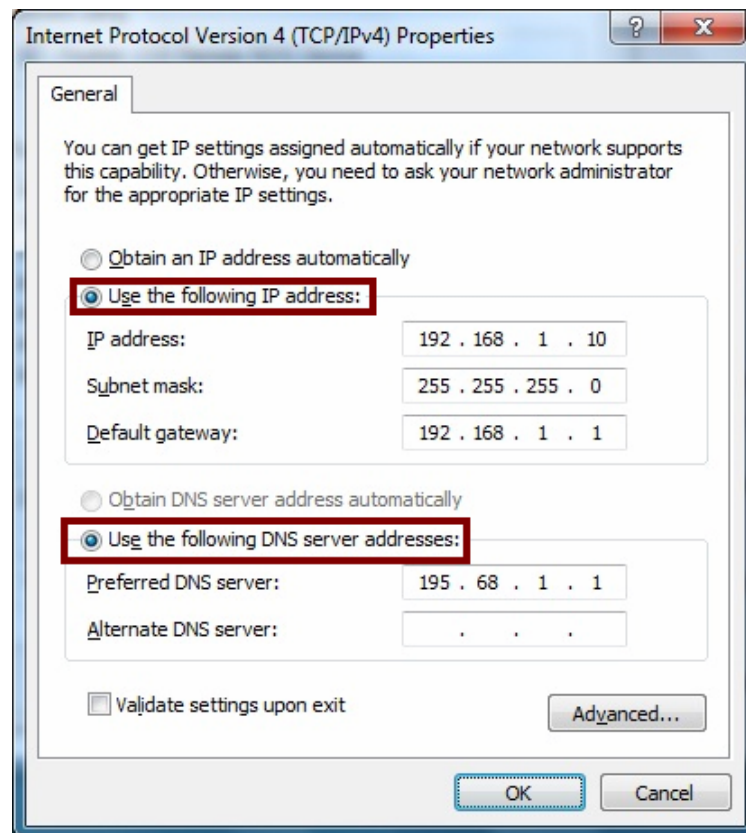
Configure IP address Automatically:

b) Select "Obtain an IP address automatically" and "Obtain DNS server address automatically" Click "OK" to finish the configuration.



### Configure IP Address Manually:

c) Select "Use the following IP address" and "Use the following DNS server addresses".



IP address: Fill in IP address 192.168.1.x (x is a number between 2 to 254).

Subnet mask: Default value is 255.255.255.0.

Default gateway: Default value is 192.168.1.1.

Preferred DNS server: Fill in preferred DNS server IP address.

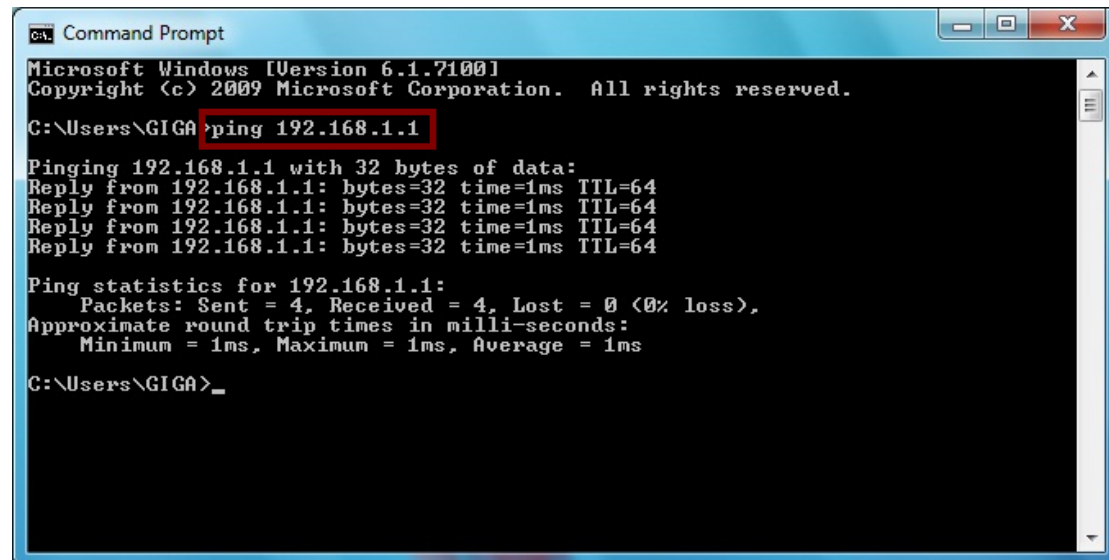
Alternate DNS server: Fill in alternate DNS server IP address.

- If you decide to use IP address from Wireless Router, select "Obtain an IP address automatically".
- If you decide to use the IP address you are desired, select "Use the following IP address". Make sure enter correct addresses in "IP Address" and "Subnet Mask" fields.
- You must set Wireless Router's IP address as "Default Gateway".
- If the DNS Server fields are empty, select "Use the following DNS server addresses" and enter the DNS address is provided by your ISP, then click "OK".



You can use ping command under DOS prompt to check if you have setup TCP/IP protocol correctly and if your computer has successfully connected to this router.

- 1) Type ping 192.168.1.1 under DOS prompt and the following messages will appear:



```
ca. Command Prompt
Microsoft Windows [Version 6.1.7100]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\GIGA>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time=1ms TTL=64
Reply from 192.168.1.1: bytes=32 time=1ms TTL=64
Reply from 192.168.1.1: bytes=32 time=1ms TTL=64
Reply from 192.168.1.1: bytes=32 time=1ms TTL=64

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 1ms, Average = 1ms

C:\Users\GIGA>
```

If the communication link between your computer and router is not setup correctly, after you type ping 192.168.1.1 under DOS prompt following messages will appear:

```
Pinging 192.168.1.1 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
```

This failure might be caused by cable issue or something wrong in configuration procedure.

### 3. Configure Wireless Router via Web Based Utility

The Wireless Router implements a Web server allowing user configure this device via the web based Utility. This Utility provides comprehensive system management scheme, including system configuration, performance monitoring, system maintenance and administration.

#### 3.1 Access Web Based Configuration Utility

To access the Web-Based Configuration Utility, you have to launch your Internet Browser. (MS IE 6.0 or later, Netscape Navigator 4.7 or later).

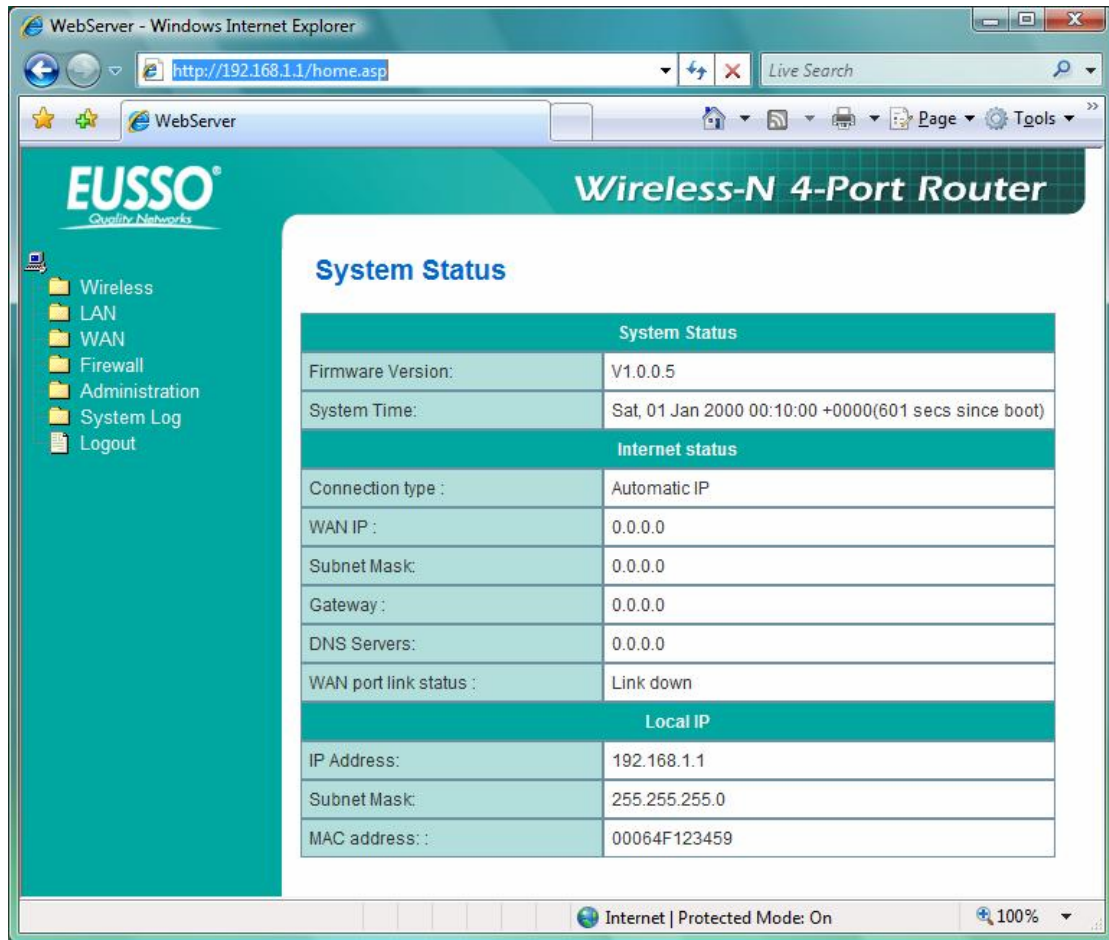
**Step1:** Enter Wireless Router's default IP address as <http://192.168.1.1> in the Address field then press Enter.



**Step2:** Login dialog box will appear, enter **admin** as Administrator Name and **1234** as default Administrator Password, and then click "**OK**" to access Configuration Utility.



**Step3:** After log in, you can see the Main menu as below.

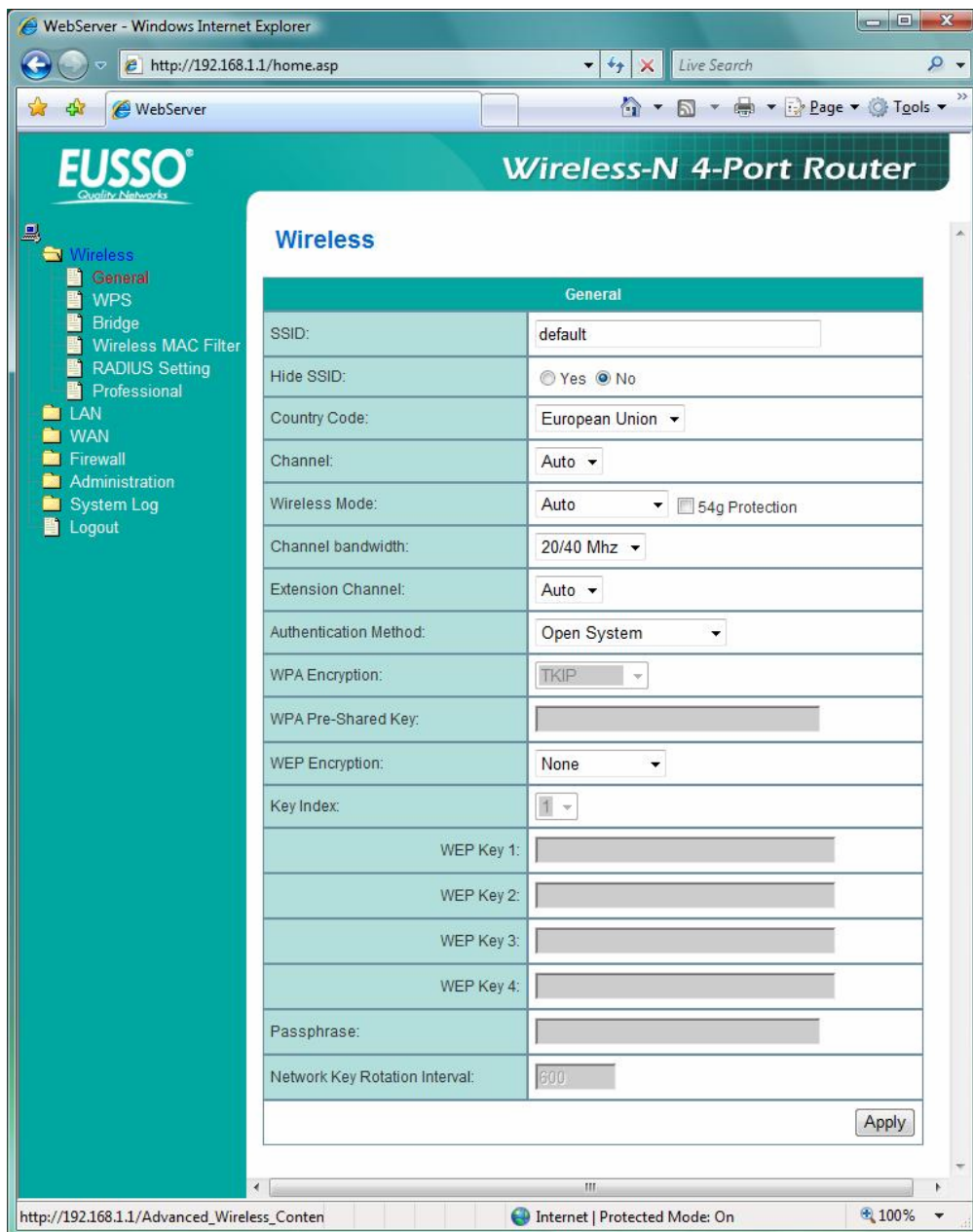


## 3.2 Wireless

Configure your wireless connection, security, and other advanced parameters.

### 3.2.1 General

This page allows user to configure basic wireless settings.



**SSID:** Assign an identification string of up to 32 characters for your wireless connection.

**Hide SSID:** If [YES] is selected, your SSID does not show in site surveys by wireless mobile clients and they can only connect to your Wireless Router with your SSID of AP.

**Country Code:** The available channel differs from different countries. For example: United States is channel 1-11, European Union is channel 1-13.

**Channel:** The radio channel for wireless connection operation.

**Wireless Mode:** This field indicates the 802.11g interface mode. Select [Auto] to allow the connection to the Wireless Router of 802.11g and 802.11b wireless mobile clients. Select [54g Protection] to enable G-Mode protection for

802.11g traffic automatically in the presence of 11b traffic.

**Authentication Method:** This field enables the authentication methods for wireless clients.

**WPA Encryption:** Enable WPA Encryption to encrypt data.

**WPA Pre-Shared Key:** This field requires a password of 8 to 63 characters to start the encryption process. If you leave this field blank, the default [00000000] will be assigned as your password.

**WEP Encryption:** Enable WEP Encryption to encrypt data.

**Key Index:** Set the WEP key to transmit data on your wireless.

**WEP Key 1~4:** Only valid when using WEP encryption algorithm. The key must match with the AP's Key.

**Passphrase:** Select [WEP-64bits] or [WEP-128bits] in WEP encryption field to generate four WEP keys automatically.

**Network Key Rotation Interval:** This field specifies the interval (in seconds) after which a WPA group key is changed. Enter [0] (zero) to indicate that a periodic key-change is not required.

### 3.2.2 WPS

WPS (Wi-Fi Protected Setup) provides easy and secure establishment of a wireless network. You can configured WPS here via the by PIN code method.



**Enable WPS:** Allowing Wi-Fi Protected Setup (WPS) to simplify the process of connecting any device to the wireless network. WPS support the



authentication of Open system, Share key, WPA-Personal, WPA2-Personal. Not support WPA-Enterprise, WPA2-Enterprise and Radius. Default is Disable.

**AP PIN Code:** Remember the PIN code of AP (the same as PIN code in the bottom of WIRELESS ROUTER). Input this PIN code in client's WPS utility and utility will configure the wireless security setting of WIRELESS ROUTER.

**Client PIN Code:** Key in an eight-digit number for the PIN code.

### 3.2.3 Bridge

Bridge (or named as WDS-Wireless Distribution System) function allows you to connect to AP through wireless.

The screenshot shows a web browser window titled "WebServer - Windows Internet Explorer" with the address bar displaying "http://192.168.1.1/home.asp". The page is for the "EUSSO Wireless-N 4-Port Router". On the left is a navigation menu with options: Wireless, General, WPS, Bridge, Wireless MAC Filter, RADIUS Setting, Professional, LAN, WAN, Firewall, Administration, System Log, and Logout. The "Wireless" section is selected, and the "Bridge" sub-section is active. The main content area is titled "Bridge" and contains the following text: "Bridge (or named WDS - Wireless Distribution System) function allows you to connect to APs through wireless. Please follow instructions listed below when you enable this function:" followed by a bulleted list of instructions. Below the text is a form with the following fields: "AP Mode:" with a dropdown menu set to "AP Only"; "Channel:" with a dropdown menu set to "Auto"; "Connect to APs in list?" with radio buttons for "Yes" and "No" (the "No" button is selected); and "Remote Bridge List" which includes a text input field, an "Add" button, and a "Delete" button. A note below the input field states: "\*Please enter the complete MAC address which contains 12 hexadecimal letters." At the bottom right of the form is an "Apply" button. The browser's status bar at the bottom shows "http://192.168.1.1/Advanced\_WMode\_Conte", "Internet | Protected Mode: On", and a zoom level of "100%".

WebServer - Windows Internet Explorer  
http://192.168.1.1/home.asp

EUSSO  
Quality Networks

Wireless-N 4-Port Router

Wireless

General  
WPS  
Bridge  
Wireless MAC Filter  
RADIUS Setting  
Professional  
LAN  
WAN  
Firewall  
Administration  
System Log  
Logout

Bridge

Bridge (or named WDS - Wireless Distribution System) function allows you to connect to APs through wireless. Please follow instructions listed below when you enable this function:

- Select[WDS Only] or [Hybrid] mode and add MAC address of APs in Remote Bridge List.
- To ensure the connection, please set the same channel and [security method](#) between different APs.
- To bridge different model and router, the function only support [Open system WEP] security authentication method.

AP Mode: AP Only

Channel: Auto

Connect to APs in list? ☐ Yes ☒ No

Remote Bridge List

\*Please enter the complete MAC address which contains 12 hexadecimal letters.

Add

Delete

Apply

http://192.168.1.1/Advanced\_WMode\_Conte Internet | Protected Mode: On 100%

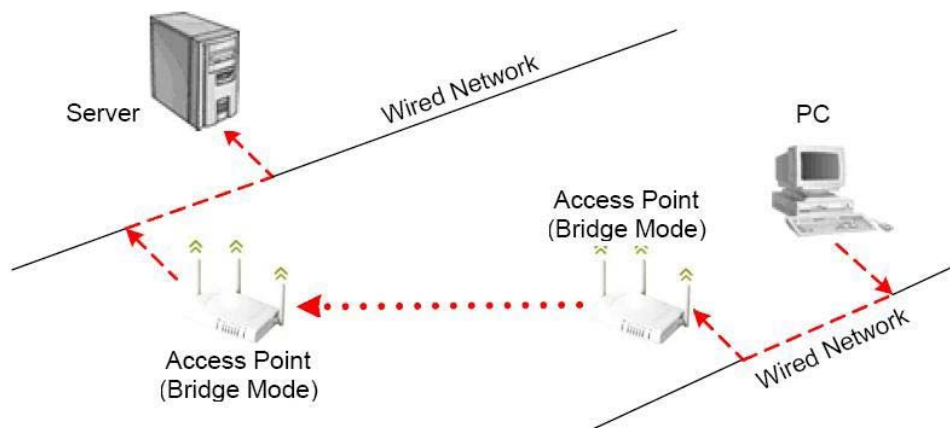
Please follow instructions listed below when you enable this function:

- (1) Select "WDS Only"(Bridge Mode) or "HyBrid"(Repeater) mode and add MACC address of APs in Remote Bridge List.

- (2) To ensure the connection, please set the same channel and security method between different APs.
- (3) To bridge different model and router, the function only supports "Open system WEP" security authentication method.

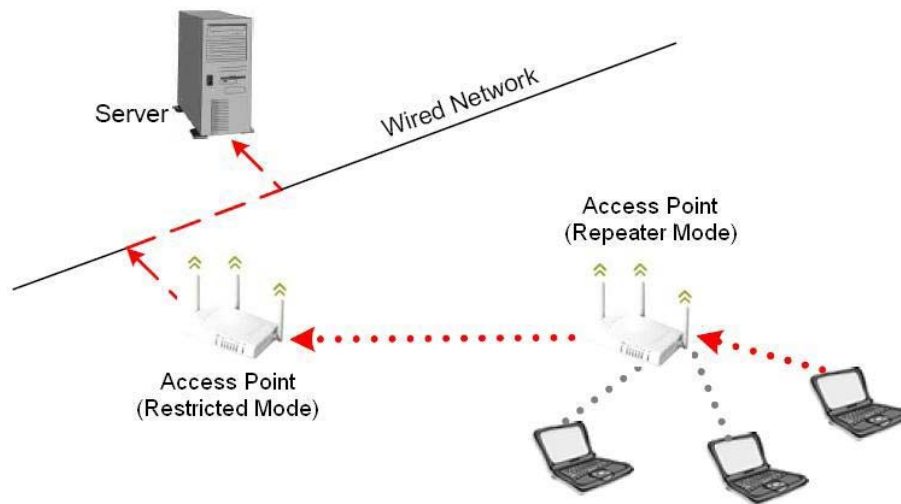
#### **AP Mode: There have 3 options for WDS function**

- (1) **AP Only** – Default settings. When this function is selected, it means Router works like AP function only.
- (2) **WDS Only (Bridge Mode)** -- AP router will function as a wireless bridge, merely forwarding traffic between access points, and will not respond to wireless requests. In fact, they become wireless bridges while configured in this manner. Only a small number of access points on the market have bridge functionality, which typically adds significant cost to the equipment. The WDS peers must be manually stated and wireless stations will not be able to connect to AP router. You can see from below diagram that clients do not associate to bridges, but rather, bridges are used to link two or more wired segments together wirelessly.



- (3) **Hybrid (Repeater mode)** – AP router will act as a repeater, interconnecting between access points. In repeater mode, access points have the ability to provide a wireless upstream link into the wired network rather than the normal wired link. As you can see the below diagram, one access point serves as the Restricted access point and the other serves as a wireless repeater. The access point in repeater mode connects to clients as an access point and connects to the upstream restricted access point as a client itself. Using an access point in Repeater mode is not suggested unless absolutely necessary because cells around each access point in the scenario must overlap by minimum of 50%. This configuration drastically

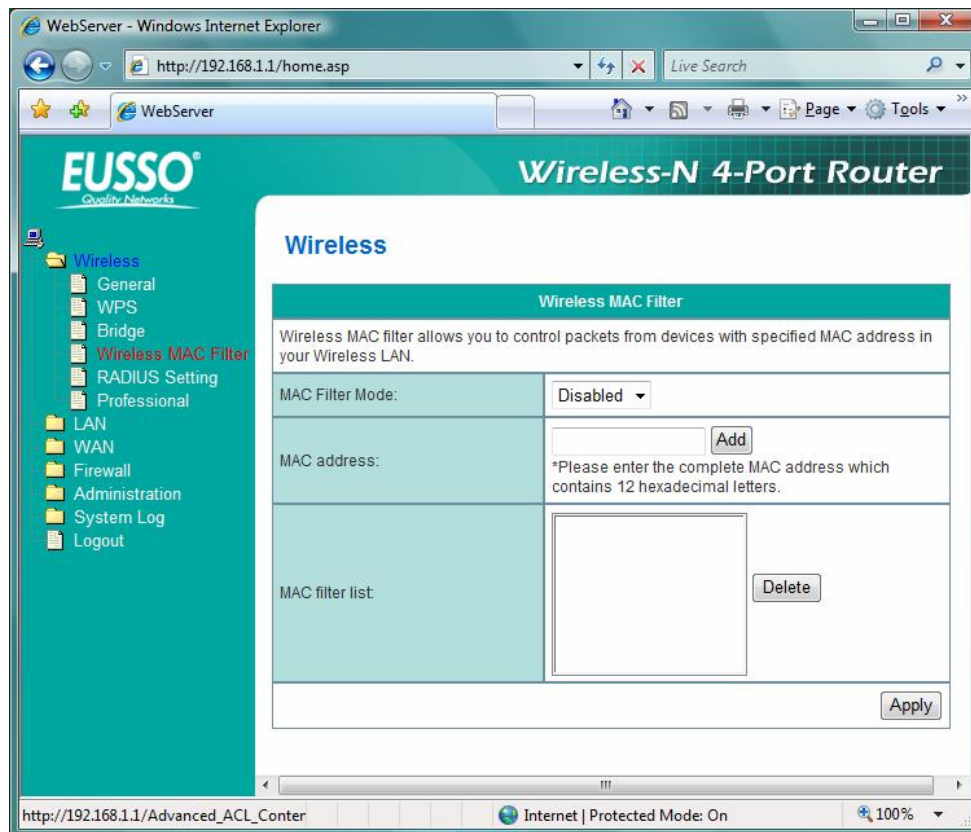
reduces the range at which clients can connect to the repeater access point. Additionally, the repeater access point is communicating with the client as well as the upstream access point over the wireless link, reducing throughput on the wireless segment. Users attached to the repeater access point will likely experience low throughput and high latencies in the scenario. It is typical for wired Ethernet port to be disabled while in repeater mode.



### 3.2.4 Wireless MAC Filter

Wireless MAC filter allows you to control packets from devices with specified MAC address in your Wireless LAN.





**MAC Filter Mode:** In Accept mode, WIRELESS ROUTER only accepts clients with MAC address in the list. In Reject mode, WIRELESS ROUTER will reject clients with MAC address in the list.

**MAC Address:** Enter the complete MAC address which contains 12 hexadecimal letters.

### 3.2.5 RADIUS MAC Filter

This section allows you to setup additional parameters for authorizing wireless client through RADIUS server. It is required while you select "**Authentication Method**" in "**Wireless – General**" as "**WPA-ENTERPRISE/WPA2-ENTERPRISE**" or "**Radius with 802.1x**".



### 3.2.6 Professional

Wireless Professional Setting allows you to set up additional parameters for wireless. But default values are recommended.

WebServer - Windows Internet Explorer  
 http://192.168.1.1/home.asp

**EUSO**  
 Quality Networks

**Wireless-N 4-Port Router**

**Wireless**

Professional

Wireless Professional Setting allows you to set up additional parameters for wireless. But default values are recommended.

Enable Radio?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Date to Enable Radio:	<input checked="" type="checkbox"/> Sun <input checked="" type="checkbox"/> Mon <input checked="" type="checkbox"/> Tue <input checked="" type="checkbox"/> Wed <input checked="" type="checkbox"/> Thu <input checked="" type="checkbox"/> Fri <input checked="" type="checkbox"/> Sat
Time of Day to Enable Radio:	00 : 00 - 23 : 59
Data Rate(Mbps):	Auto
Multicast Rate(Mbps):	36
Basic Rate Set:	Default
Fragmentation Threshold:	2346
RTS Threshold:	2346
DTIM Interval:	1
Beacon Interval:	100
Enable TX Bursting?	Enable
Enable Packet Aggregation?	Enable
Enable Greenfield?	Disable
Enable WMM?	Disable
Enable WMM No-Acknowledgement?	Disable
Enable WMM APSD?	Disable
Enable WMM DLS?	Disable

Apply

http://192.168.1.1/Advanced\_WAdvanced\_Cor Internet | Protected Mode: On 100%

**Enable Radio?:** Select [Yes] to enable Radio function.

**Date to Enable Radio:** This field defines the dates that wireless function is enabled.

**Time of Day to Enable Radio:** This field defines the time interval that wireless function is enabled.

**Data Rate (Mbps):** This field allows you to select the transmission rate. [Auto] is recommended to maximize performance.

**Fragmentation Threshold:** Fragmentation Threshold sets the frame size of

incoming messages (ranging from 256 to 2346 bytes) used as fragmentation boundary. If the frame size is too big, the heavy interference affects transmission reliability. If the frame size is too small, it decreases transmission efficiency.

**RTS Threshold:** Lower the signal RTS (Request To Send) to promote the transmission efficiency in condition of noisy environment or too many clients.

**DTIM Interval:** DTIM (Delivery Traffic Indication Message) is included in Beacon packet. The DTIM Interval (1-255) means the period of time to wake up wireless clients from Sleep Mode. The default value is 1.

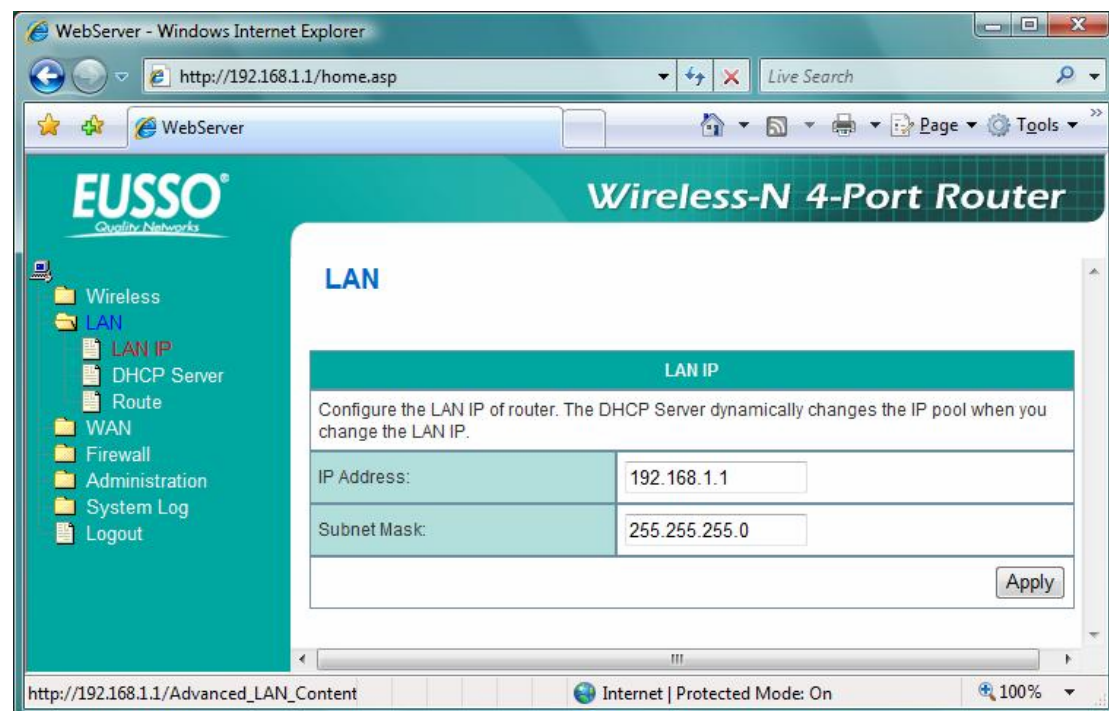
**Beacon Interval:** Beacon Interval means the period of time between one beacon and the next one. The default value is 100 (the unit is millisecond, or 1/1000 second). Lower the Beacon Interval to improve transmission performance in unstable environment or for roaming clients, but it will be power consuming.

### 3.3 LAN

Configure LAN IP, DHCP, and Route settings.

#### 3.3.1 LAN IP

Configure the LAN IP of WIRELESS ROUTER. The DHCP Server dynamically changes the IP pool when you change the LAN IP.



**IP Address:** The LAN IP address of WIRELESS ROUTER. The Default value is

192.168.1.1.

**Subnet Mask:** The LAN subnet mask of WIRELESS ROUTER. The Default value is 255.255.255.0

### 3.3.2 DHCP

WIRELESS ROUTER supports up to 253 IP address for your local network. The IP address of a local machine can be assigned manually by the network administrator or obtained automatically from WIRELESS ROUTER if the DHCP server is enabled.

The screenshot shows the EUSSO Wireless-N 4-Port Router web interface. The browser address bar shows <http://192.168.1.1/home.asp>. The left sidebar contains a tree view with the following items: Wireless, LAN (selected), LAN IP, DHCP Server, Route, WAN, Firewall, Administration, System Log, and Logout. The main content area is titled "LAN" and contains the following sections:

- DHCP Server**
  - Router supports up to 253 IP addresses for your local network. The IP address of a local machine can be assigned manually by the network administrator or obtained automatically from router if the DHCP server is enabled.
  - Enable the DHCP Server? ☒ Yes ☐ No
  - Router's Domain Name:
  - IP Pool Starting Address:
  - IP Pool Ending Address:
  - Lease Time:
  - Default Gateway:
- DNS and WINS Server Setting**
  - DNS Server:
  - WINS Server:
- Manually Assigned IP around the DHCP List**
  - Enable Manual Assignment? ☐ Yes ☒ No
  - Table with columns: MAC Address, IP Address, and an Add button.
  - Below the table is a large empty text area and a Delete button.
  - An Apply button is at the bottom right of the section.

The status bar at the bottom shows the URL [http://192.168.1.1/Advanced\\_DHCP\\_Content](http://192.168.1.1/Advanced_DHCP_Content), Internet connection, Protected Mode: On, and 100% zoom.

**Enable the DHCP Server?:** DHCP server administers and assigns IP addresses for LAN clients automatically.

**WIRELESS ROUTER's Domain Name:** The Domain Name for client who requests IP address from the DHCP server.

**IP Pool Starting Address:** The first address in the pool to be assigned by the DHCP server in LAN.

**IP Pool Ending Address:** This field indicates the last address in the pool to be assigned by the DHCP server in LAN.

**Lease Time:** The amount of connection time with the current dynamic IP address.

**Default Gateway:** This field indicates the IP address of gateway in your LAN.

**DNS Server:** This field indicates the IP address of DNS to provide to clients that request IP address from DHCP server.

**WINS Server:** The Windows Internet Naming Service manages interaction of each PC with the Internet. If you use a WINS server, enter IP address of server here.

**Enable Manual Assignment?:** Enable this function to assign static IP address by manually.

**MAC Address:** Enter the MAC Address of each DHCP client.

**IP Address:** Assign an IP address for each DHCP client. The IP address should comply with the DHCP address pool you specified. The DHCP address pool contains the range of the IP address that will automatically be assigned to the clients on the network.

### 3.3.3 Route

This function allows you to add routing rules into WIRELESS ROUTER. It is useful if you connect several routers behind WIRELESS ROUTER to share the same connection to the Internet.





**Network/Host IP:** It stands for the destination network or host of a route rule. So it could be a host address, such as 「192.168.123.11」 or a network address, such as 「192.168.0.0」.

**Netmask:** It indicates how many bits are for network ID and subnet ID. For example: if the dotted-decimal netmask is 255.255.255.0, then it's netmask bits is 24. If the destination is a host, its netmask bits should be 32.

**Gateway:** It stands for the IP address of gateway where packets are routed to. The specified gateway must be reachable first. It means you have to set up a static route to the gateway beforehand.

**Metric:** Metric is a value of distance for the network.

**Interface:** Network interface that the route rule applies to.

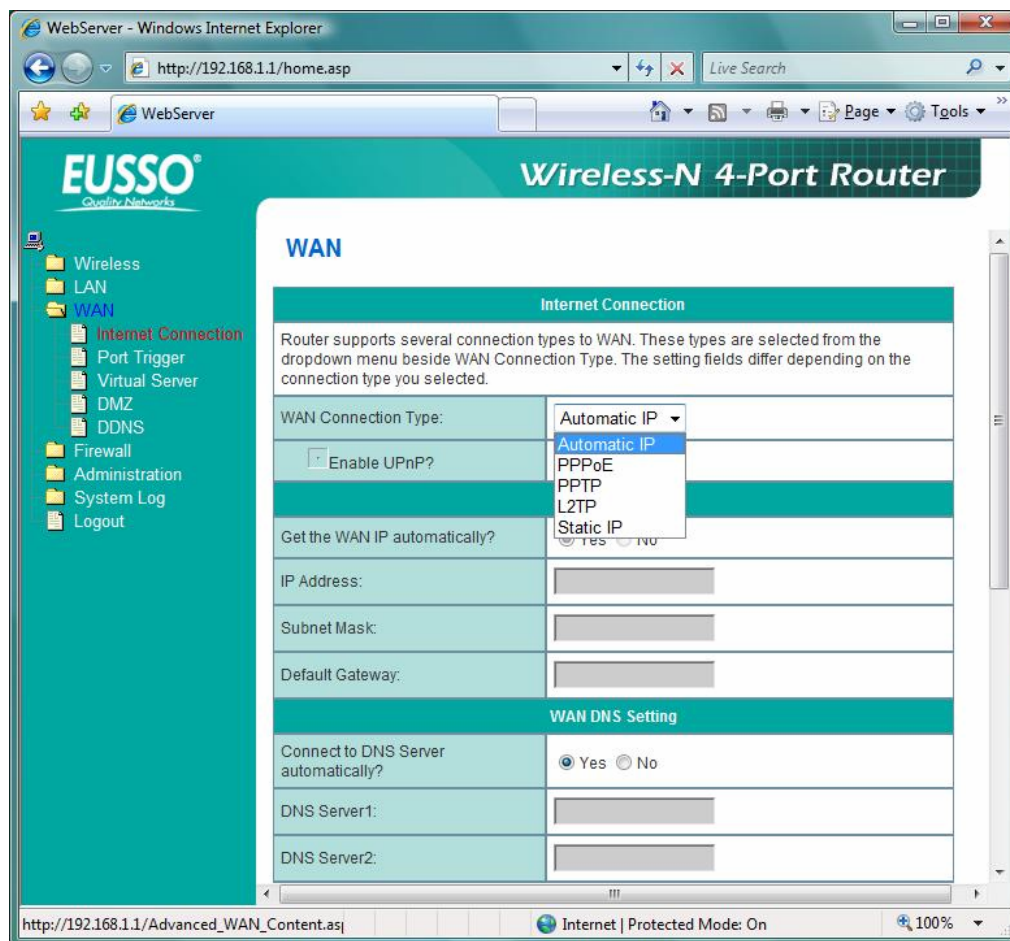
### 3.4 WAN

Configure the Internet connection, Virtual Server and Server settings.

#### 3.4.1 Internet Connection

WIRELESS ROUTER supports several connection types to WAN. These types are selected from the dropdown menu beside WAN Connection Type. The setting

fields differ depending on the connection type you selected.



**WAN Connection Type:** WIRELESS ROUTER supports 5 methods of obtaining the WAN IP Address:

- **Automatic IP (DHCP):** Automatic gets IP address from your ISP.
- **PPPoE (ADSL):** PPPoE is a common connection type used for xDSL.
- **PPTP:** PPP Tunneling Protocol can support multi-protocol Virtual Private Network (VPN).
- **L2TP:** Layer 2 Tunneling Protocol can support multi-protocol Virtual Private Networks (VPN)
- **Static IP (fixed IP):** Use static IP address to access Network.

**Get the WAN IP automatically?:** This field allows you to get the WAN IP address automatically.

**IP Address:** This is the IP address of WIRELESS ROUTER as seen on the remote network. If you set it to 0.0.0.0, WIRELESS ROUTER will get IP address from DHCP Server automatically.

**Subnet Mask:** This is the Subnet Mask of WIRELESS ROUTER as seen on the remote network.

**Default Gateway:** This is the IP address of the default gateway that allows for



contact between WIRELESS ROUTER and the remote network or host.

Connect to DNS Server automatically: This field allows you to get the DNS IP address from the remote network automatically

**DNS Server 1~2:** This field indicates the IP address of DNS that WIRELESS ROUTER contacts to.

The screenshot shows a web browser window titled "WebServer - Windows Internet Explorer" with the address bar displaying "http://192.168.1.1/home.asp". The page header includes the "EUSO" logo and the title "Wireless-N 4-Port Router". A left sidebar contains a navigation menu with items: Wireless, LAN, WAN, Internet Connection, Port Trigger, Virtual Server, DMZ, DDNS, Firewall, Administration, System Log, and Logout. The main content area is divided into two sections. The "Account Setting" section contains fields for "User Name:" (with the value "username"), "Password:" (masked with dots), "Idle Disconnect Time in seconds: Disconnect after time of inactivity (in seconds):" (empty), "MTU:" (with the value "1460"), and "PPTP Options:" (a dropdown menu showing "No Encryption"). The "Special Requirement from ISP" section contains fields for "VPN Server:" (empty), "Host Name:" (with the value "UGL2430-RTH"), and "MAC Address:" (empty). An "Apply" button is located at the bottom right of the form. The browser's status bar at the bottom shows "http://192.168.1.1/Advanced\_WAN\_Content.asp" and "Internet | Protected Mode: On".

**User Name:** This field is only available when you set WAN Connection Type as PPPoE or PPTP.

**Password:** This field is only available when you set WAN Connection Type as PPPoE.

**Idle Disconnect Time in seconds: Disconnect After time of inactivity (in seconds):** This field is optional and allows you to configure to terminate your ISP connection after a specified period of time. This field is optional and allows you to end your ISP connection after the specified time of inactivity. A value of zero allows infinite idle time. If Tx Only is checked, the data from Internet will be skipped for counting idle time. If Tx Only is checked, Internet activity such as downloading data, is not counted as idle time.

**MTU:** It means Maximum Transmission Unit (MTU) of PPPoE packet.

**Heart-Beat or PPTP/L2TP (VPN) Server:** Please enter the server name or server IP of the authentication server of BigPond server.

**Host Name:** This field allows you to provide a host name for WIRELESS ROUTER. It is usually requested by your ISP.

**MAC address:** This field allows you to provide a unique MAC address for WIRELESS ROUTER to connect Internet. It is usually requested by your ISP.

### 3.4.2 Port Trigger

Port Trigger function allows you to open certain TCP or UDP ports to communicate with the computers connected to WIRELESS ROUTER. This is done by defining trigger ports and incoming ports. When the trigger port is detected, the inbound packets to the specified incoming port numbers are redirected to your computer.

The screenshot shows a web browser window displaying the EUSO Wireless-N 4-Port Router's configuration page. The left sidebar contains a tree view with options: Wireless, LAN, WAN, Internet Connection, Port Trigger (highlighted), Virtual Server, DMZ, DDNS, Firewall, Administration, System Log, and Logout. The main content area is titled 'NAT Setting' and includes a 'Port Trigger' section. This section contains a descriptive paragraph, a 'Trigger Port List' table, and an 'Apply' button. The table has columns for Description, Trigger Port, Protocol, Incoming Port, and Protocol. The 'Enable Port Trigger?' section has radio buttons for 'Yes' and 'No', with 'No' selected. The table is currently empty, showing 'No data in table.'.

Trigger Port List				
Enable Port Trigger? <input type="radio"/> Yes <input checked="" type="radio"/> No				
Description	Trigger Port	Protocol	Incoming Port	Protocol
		TCP		TCP
No data in table.				

**Enable Port Trigger:** Enable/Disable the port trigger.

**Description:** Enter the name of port trigger.

**Trigger Port:** This is the port used to trigger the application. It can be either a single port or a range of ports.

**(Trigger) Protocol:** This is the protocol used to trigger the special application.

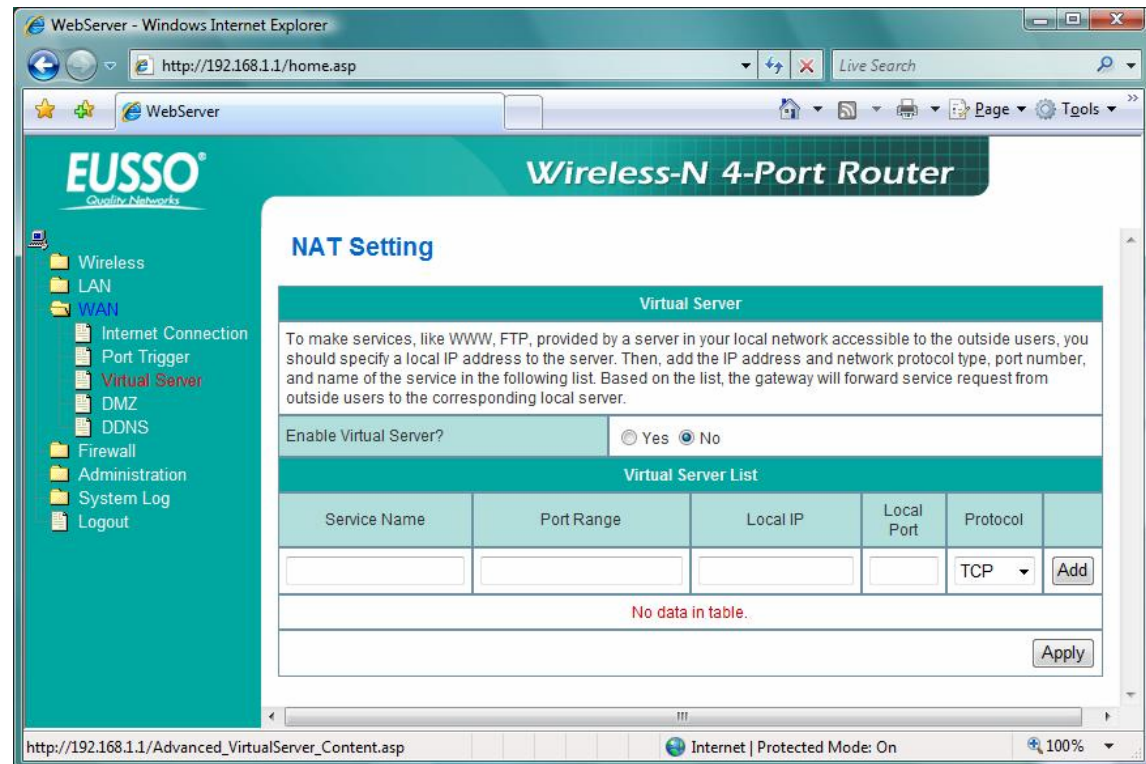
**Incoming Port:** This is the port number on the WAN side that will be used to access the application. You may define a single port or a range of ports. You can use a comma to add multiple ports or port ranges.

**(Incoming) protocol:** This is the protocol used for the special application.

### 3.4.3 Virtual Server

To make services, like WWW, FTP, provided by a server in your local network

accessible to the outside users, you should specify a local IP address to the server. Then, add the IP address and network protocol type, port number, and name of the service in the following list. Based on the list, the gateway will forward service request from outside users to the corresponding local server.



**Port Range:** Enter the Port range for WAN side.

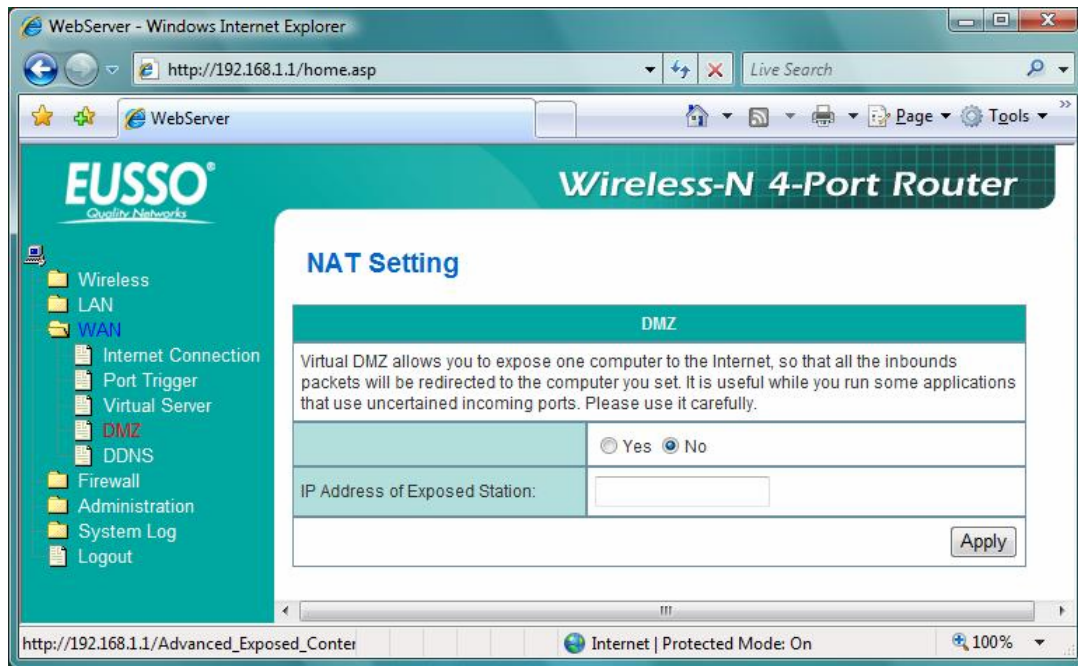
**Local IP:** Enter the IP Address for the Virtual Server in LAN side.

**Local Port:** Enter the specific Local Port number you want to forward

**Protocol:** This is the protocol used to Virtual server.

### 3.4.4 DMZ

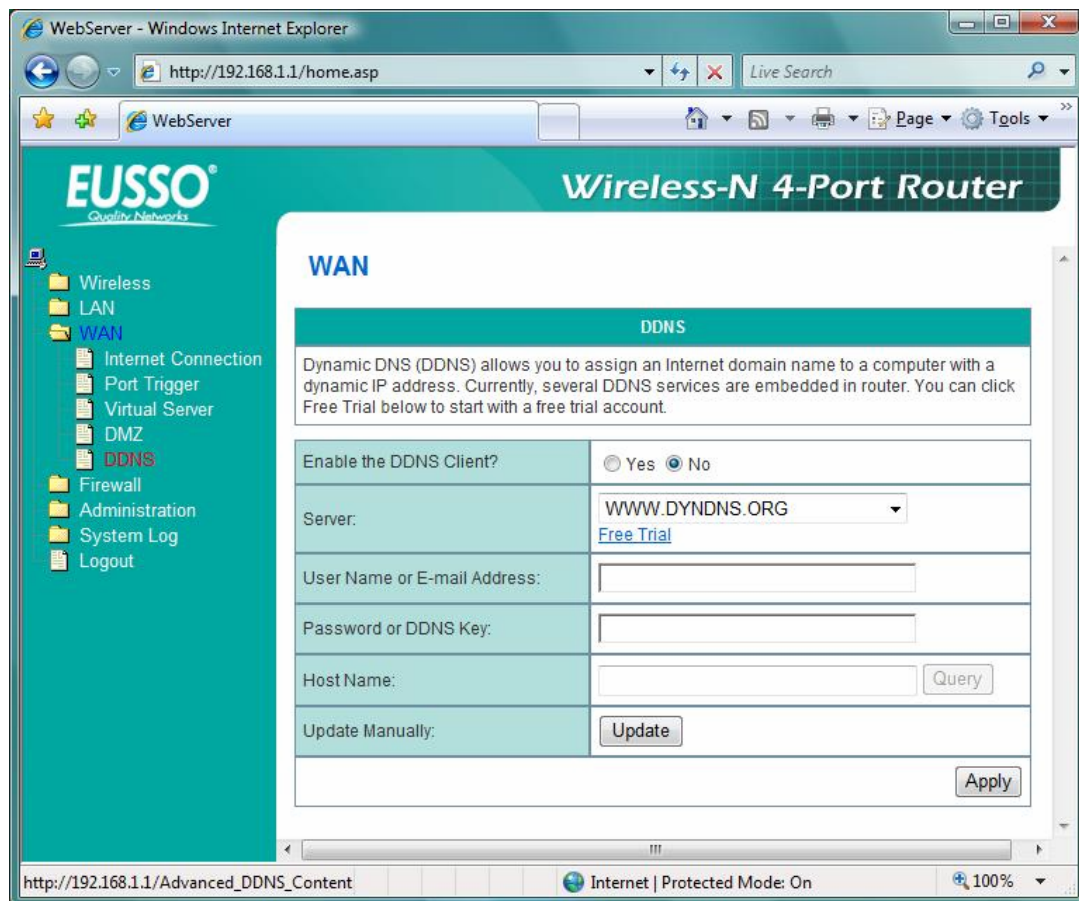
DMZ (De-Militarized Zone) allows you to expose one computer to the Internet, so that all the inbounds packets will be redirected to the computer you set. It is useful while you run some applications that use uncertain incoming ports.



**IP Address of Exposed Station:** Enter the IP address of a particular host in your LAN that will receive all the packets originally going to the WAN port/Public IP address above. **Note:** You need to give your LAN PC clients a fixed/static IP address for DMZ to work properly

### 3.4.5 DDNS

Dynamic DNS (DDNS) allows you to assign an Internet domain name to a computer with a dynamic IP address. Currently, several DDNS services are embedded in WIRELESS ROUTER.



**Enable the DDNS Client:** Enable/Disable the DDNS server. Default setting is Disable.

**Server:** AP Router supports type: [DynDns.org](http://DynDns.org).

**User Name or E-mail address:** Enter the user name or e-mail address that you register in [DynDns.org](http://DynDns.org) website

**Password or DDNS Key:** Enter the password or DDNS Key that you register in [DynDns.org](http://DynDns.org) website

**Hostname:** Enter the hostname that you register in [DynDns.org](http://DynDns.org) website

**Update Manual:** Click "Update" button to update the DDNS manually.

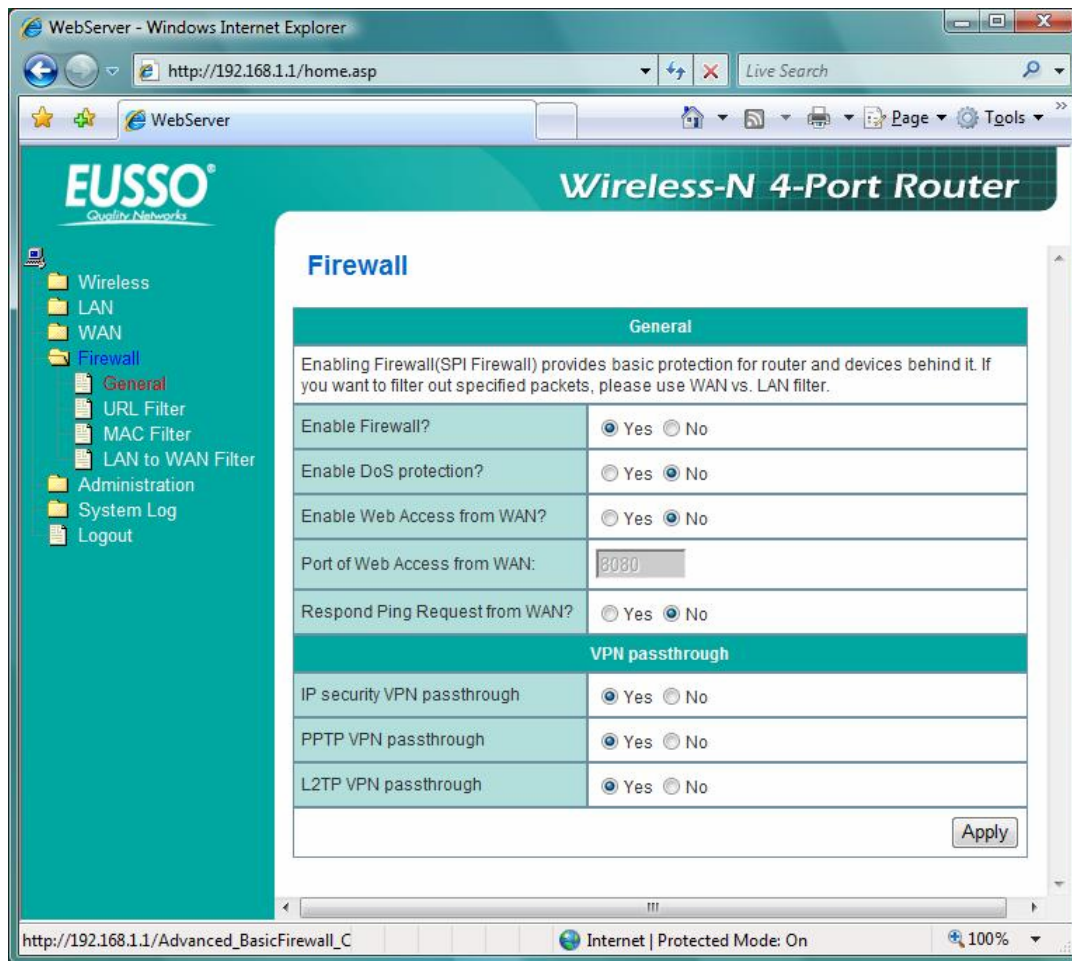
## 3.5 Firewall

Configure the firewall and filter mechanisms to protect your network.

### 3.5.1 General

Enabling Firewall provides basic protection for WIRELESS ROUTER and devices behind it. If you want to filter out specified packets, please use WAN vs. LAN filter in next page.





### [General]

**Enable Web Access from WAN?:** This feature allows you to configure WIRELESS ROUTER from the Internet. If you are under Home Gateway mode, please access WIRELESS ROUTER with 8080 port (i.e. <http://Your WAN IP: 8080>).

**Port of Web Access from WAN:** To specify the port used to configure WIRELESS ROUTER from the Internet. The default port is 8080.

**Respond Ping Request from WAN?:** This feature allows you to respond to ping request from WAN.

### [VPN Passthrough]

**IP security VPN Passthrough:** IP Security (IPSec) is a framework for a set of protocols for security at the network or packet processing layer of network verification.

**PPTP VPN Passthrough:** PPTP is a protocol that allows corporations to extend their own corporate network through private “tunnels” over the public Internet. Click “Yes” to Enable this protocol verification.

**L2TP VPN Passthrough:** L2TP is an extension to the Point-to-Point Protocol, which is an important component for VPNs. VPNs allow users and telecommuters to

connect to their corporate intranets or extranets.

### 3.5.2 URL Filter

To specify keyword, URL filter will block specific URL access from clients.

The screenshot shows a web browser window titled "WebServer - Windows Internet Explorer" with the address bar displaying "http://192.168.1.1/home.asp". The page is for the "EUSO Wireless-N 4-Port Router" and is titled "Firewall". On the left is a navigation menu with options: Wireless, LAN, WAN, Firewall (selected), General, URL Filter (highlighted), MAC Filter, LAN to WAN Filter, Administration, System Log, and Logout. The main content area is titled "URL Filter" and contains the following fields:

- To specify keyword, URL filter will block specific URL access from clients.**
- Enable URL Filter?** with radio buttons for Yes and No (No is selected).
- Date to Enable URL Filter:** with checkboxes for Sun, Mon, Tue, Wed, Thu, Fri, and Sat (all are checked).
- Time of Day to Enable URL Filter:** with time selection boxes set to 00:00 - 23:59.
- URL Keyword List:** a text input field with an "Add" button.
- A large empty box with a "Delete" button.
- An "Apply" button at the bottom right.

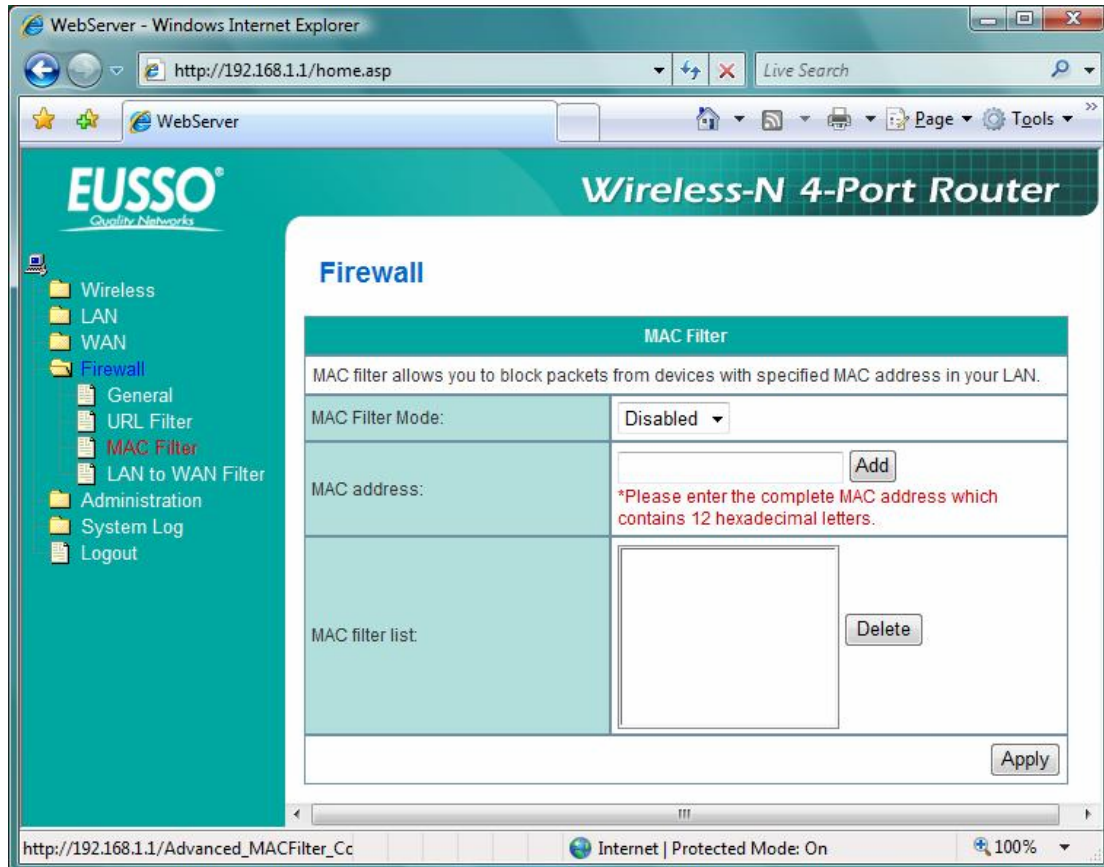
The status bar at the bottom shows "http://192.168.1.1/Advanced\_URLFilter\_Con", "Internet | Protected Mode: On", and "100%".

**Date to Enable URL Filter:** This field defines the dates that URL filter will be enabled.

**Time of Day to Enable URL Filter:** This field defines the time interval that URL filter will be enabled.

### 3.5.3 MAC Filter

MAC filter allows you to block packets from devices with specified MAC address in your LAN.



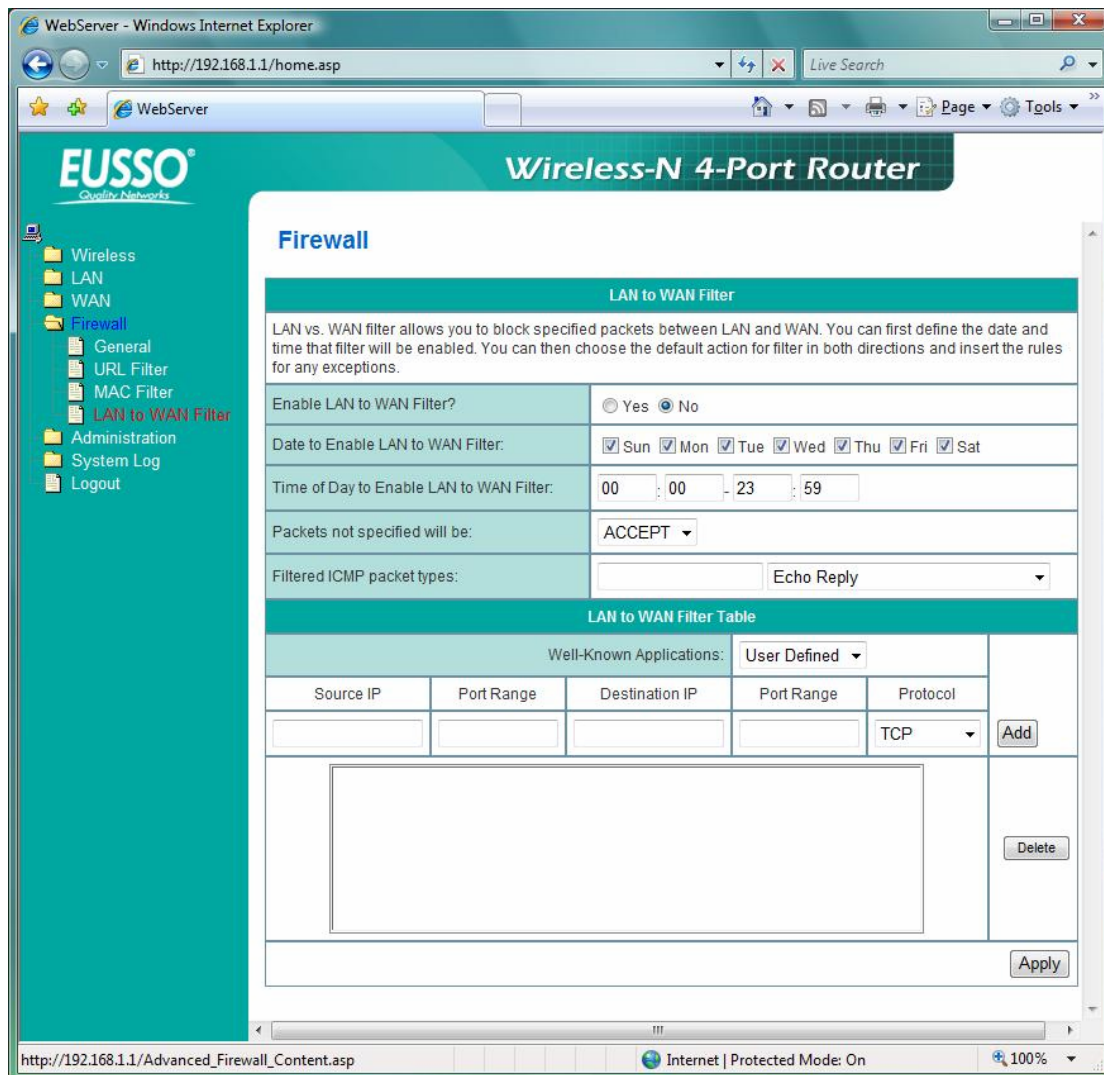
**MAC Filter Mode:** In Accept mode, WIRELESS ROUTER only accepts clients with MAC address in the list. In Reject mode, WIRELESS ROUTER will reject clients with MAC address in the list.

**MAC Address:** Please enter the complete MAC address which contains 12 hexadecimal letters.

### 3.5.4 LAN to WAN Filter

LAN vs. WAN filter allows you to block specified packets between LAN and WAN. You can first define the date and time that filter will be enabled. You can then choose the default action for filter in both directions and insert the rules for any exceptions





**Enable LAN to WAN Filter?:** Select [Yes] to enable filter that specify IP or port for control incoming and outgoing packets.

**Date to Enable LAN to WAN Filter:** This field defines the dates that LAN to WAN filter will be enabled.

**Time of Day to Enable LAN to WAN Filter:** This field defines the time interval that LAN to WAN filter will be enabled.

**Packets not specified will be:** This field defines those LAN to WAN packets which are not specified in IP Filter Table will be accepted or dropped.

**Filtered ICMP packet types:** This field defines a list of LAN to WAN ICMP packets type that will be filtered. For example, if you would like to filter Echo (type 8) and Echo Reply (type 0) ICMP packets, you need to enter a string with numbers separated by blank, such as, 0 5.

Well-Known Applications: User Defined, WWW, Telnet, FTP

## 3.6 Administration

Configure the system and upgrade the firmware of WIRELESS ROUTER.

### 3.6.1 Status

This page is to view the Wireless system status, such as System Information, Internet Configurations and Local Network information.

The screenshot shows a web browser window displaying the EUSO Wireless-N 4-Port Router administration interface. The page title is "System Status". The left sidebar contains a navigation menu with the following items: Wireless, LAN, WAN, Firewall, Administration (highlighted), Status (highlighted), System, Firmware Upgrade, Restore/Save/Upload, System Log, and Logout. The main content area displays the following information:

System Status	
Firmware Version:	V1.0.0.5
System Time:	Sat, 01 Jan 2000 00:21:43 +0000(1304 secs since boot)

Internet status	
Connection type :	Automatic IP
WAN IP :	0.0.0.0
Subnet Mask:	0.0.0.0
Gateway :	0.0.0.0
DNS Servers:	0.0.0.0
WAN port link status :	Link down

Local IP	
IP Address:	192.168.1.1
Subnet Mask:	255.255.255.0
MAC address: :	00064F123459

The browser window shows the address bar with "http://192.168.1.1/home.asp" and the status bar with "Internet | Protected Mode: On".

### 3.6.2 System

This section allows you to change system's Password and Remote server's information.

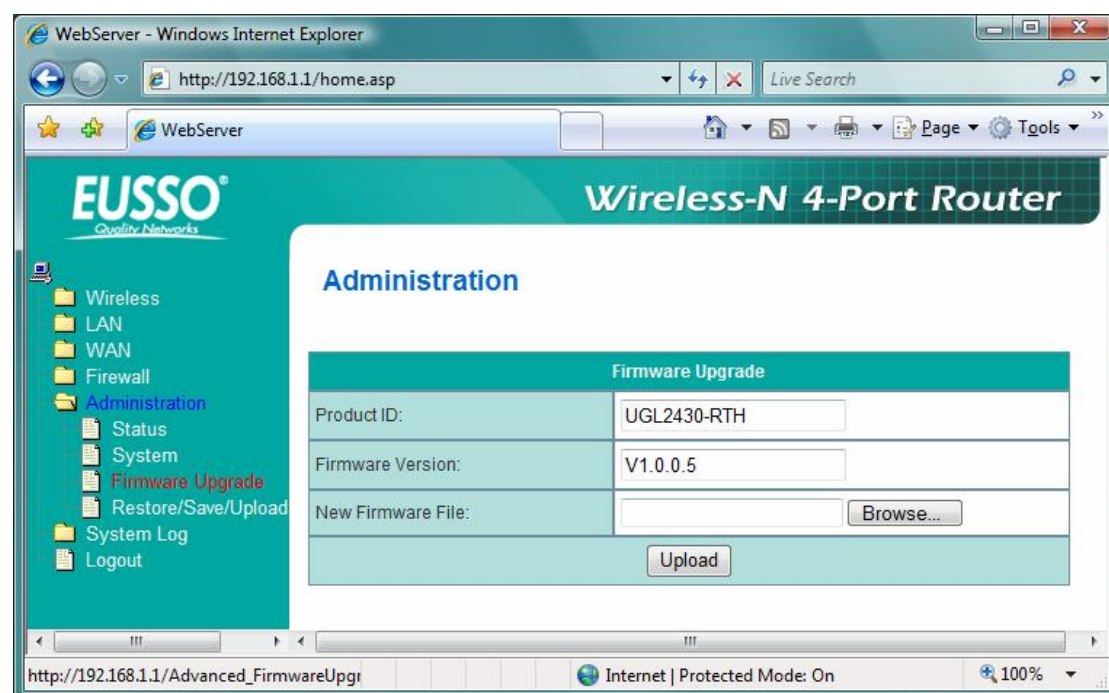
The screenshot shows a web browser window titled 'WebServer - Windows Internet Explorer' with the address bar displaying 'http://192.168.1.1/home.asp'. The page features the EUSO logo and the title 'Wireless-N 4-Port Router'. A left sidebar contains a tree view with folders: Wireless, LAN, WAN, Firewall, and Administration. Under Administration, there are links for Status, System (highlighted), Firmware Upgrade, Restore/Save/Upload, System Log, and Logout. The main content area is titled 'Administration' and contains a 'System' section. This section has a 'Change System's Password' subsection with fields for 'New Password:' and 'Retype New Password:'. Below this is a 'Miscellaneous' subsection with fields for 'System Time:' (displaying 'Sat, 01 Jan 2000 00:22:05 +0000(1326 secs since boot)' and a 'Sync with host' button), 'Remote Log Server:', 'Time Zone:' (a dropdown menu showing '(GMT) Greenwich Mean Time'), and 'NTP Server:' (displaying 'time.nist.gov' with an 'NTP Link' button). An 'Apply' button is at the bottom right of the form. The browser's status bar at the bottom shows 'http://192.168.1.1/Advanced\_System\_Conti', 'Internet | Protected Mode: On', and a zoom level of '100%'.

**Remote Log Server:** This field allows assigning a remote server to record log messages of WIRELESS ROUTER. If you leave it blank, the system will record up to 1024 messages on WIRELESS ROUTER.

**Time Zone:** The standard time in your area or locality.

**NTP Server:** To synchronize your system time with NTP Server.

### 3.6.3 Firmware Upgrade



**Follow instructions listed below:**

1. Check if any new version of firmware is available on website.
2. Download a proper version to your local machine.
3. Specify the path of and name of the downloaded file in the [New Firmware File].
4. Click [Upload] to upload the file to WIRELESS ROUTER. Uploading process takes about three minutes.
5. After receiving a correct firmware file, WIRELESS ROUTER will automatically start the upgrade process. The system reboots after the upgrading process is finished.

**Note:**

1. For a configuration parameter existing both in the old and new firmware, its setting will be kept during the upgrade process.
2. In case the upgrade process fails, WIRELESS ROUTER enters the emergency mode automatically. The LED signals at the front of WIRELESS ROUTER will indicate such situation. Use the Firmware Restoration utility on the CD to do system recovery

### 3.6.4 Restore/Save/Upload

This function allows you to save current settings of WIRELESS ROUTER to a file, or load settings from a file.



**Factory default:** Click [Factory default] to restore the router to its factory default settings and delete all the current settings. Wait for a while until the router reboots.

**Save settings:** Click the [Save] button to save current setting of WIRELESS ROUTER into a file. (Note: While you save current settings to a file, it will be saved to flash as well.)

**Restore settings:** Specify the path and name of setting file. Then click [Upload] to write the file to WIRELESS ROUTER. Please wait 30 seconds until WIRELESS ROUTER reboots.

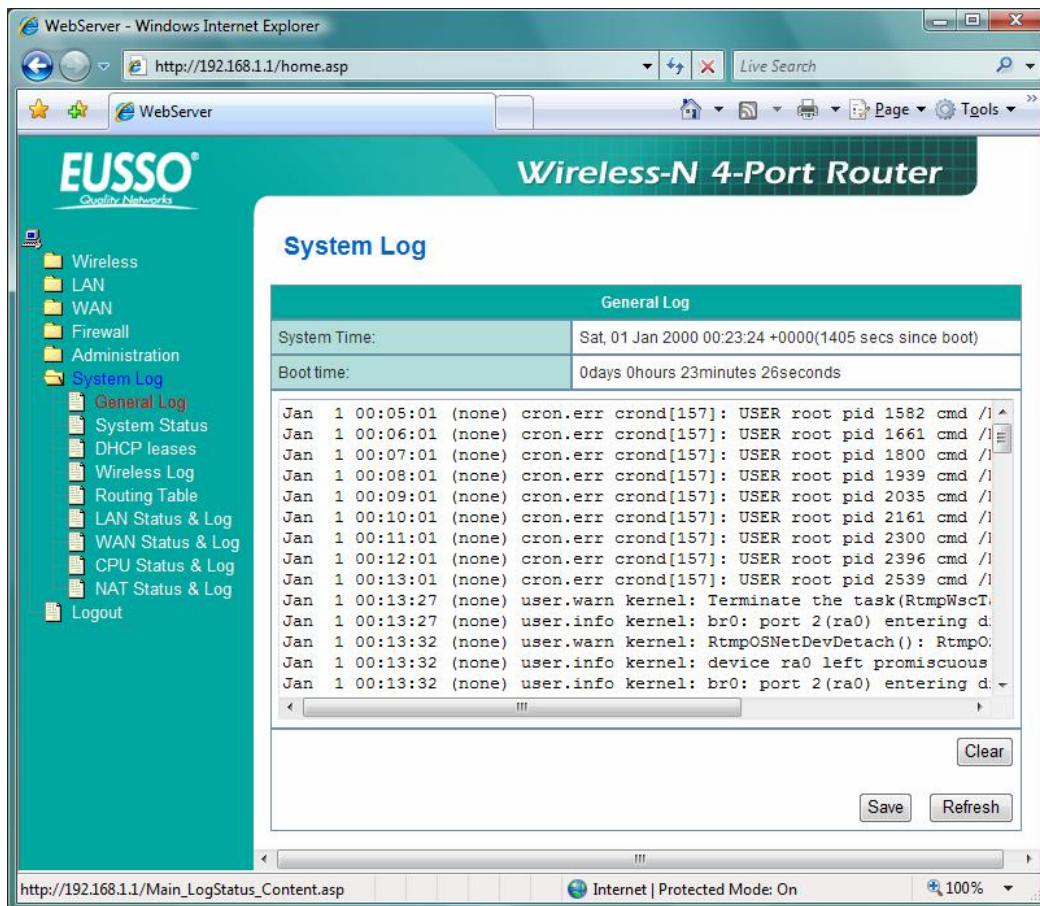
## 3.7 System Log

Monitor the status and various system logs.



### 3.7.1 General

The log file keeps a running log of events and activities occurring on the device. The log always displays recent logs. When the device is rebooted, the log would not be cleared.



**Boot time:** Elapsed time since system boot

### 3.7.2 System Status

This page is to view the Wireless system status.



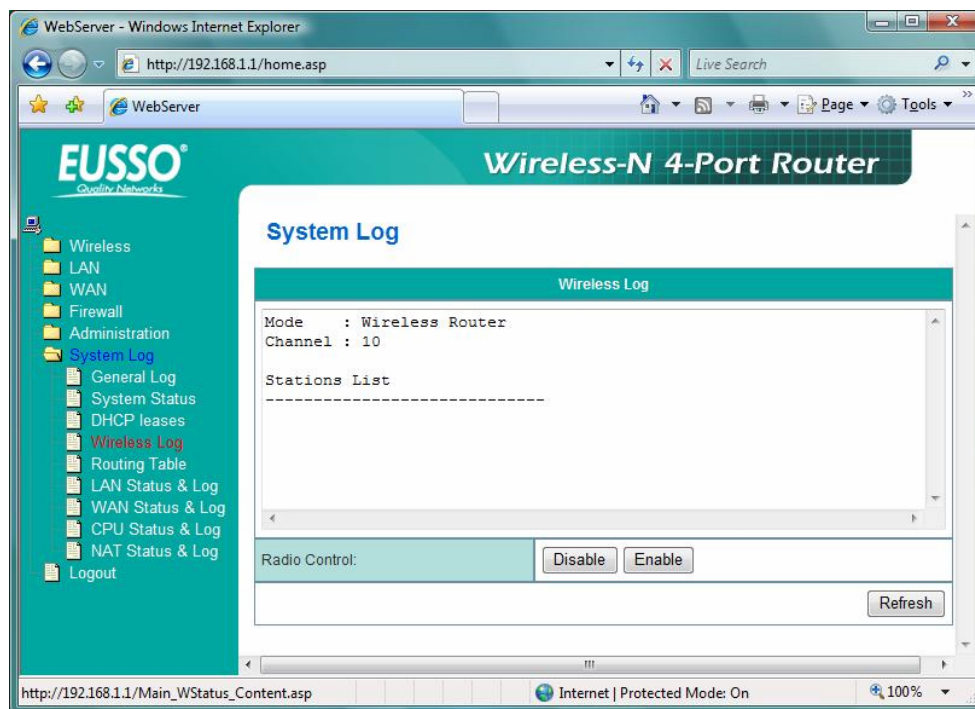
### 3.7.3 DHCP Lease

This page displays the DHCP leases log, such as Host Name, MAC Address, IP address, and Expires In information.



### 3.7.4 Wireless Log

This page displays wireless system log, such as wireless mode, channel, and Stations list.

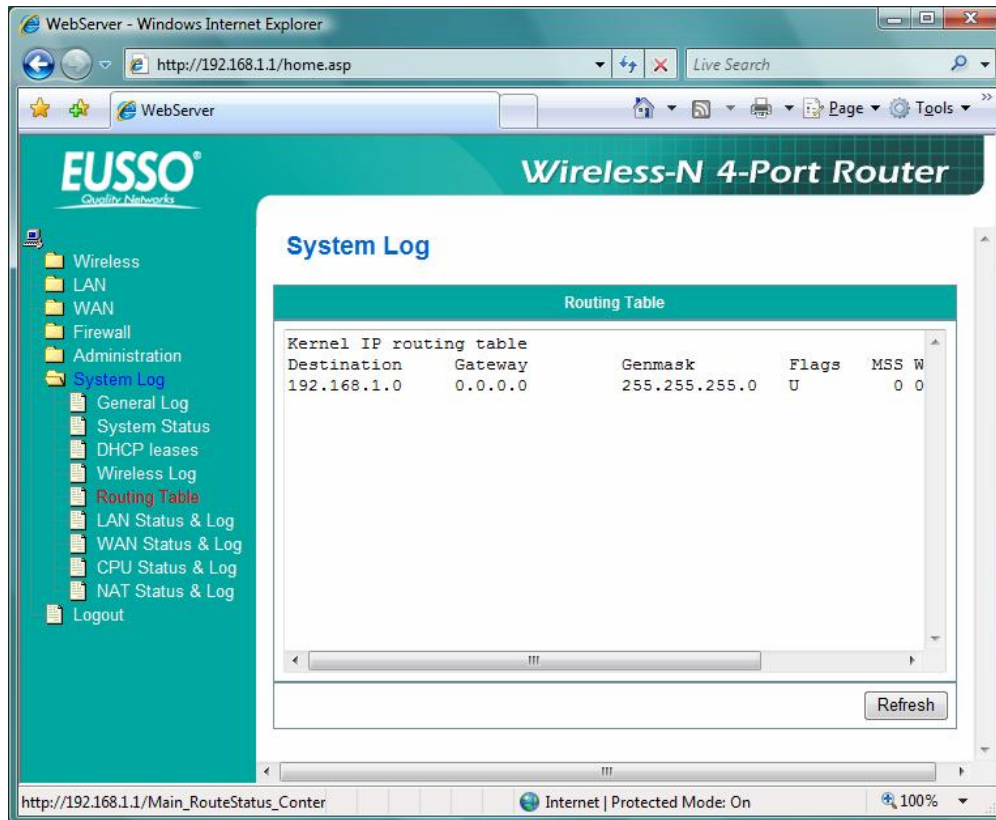


**Radio Control:** To enable wireless radio or disable.

### 3.7.5 Routing Table

A routing table contains the information necessary to forward a packet along the best path toward its destination. Each packet contains information about its origin and destination. When a packet is received, a network device examines the packet and matches it to the routing table entry providing the best match for its destination. The table then provides the device with instructions for sending the packet to the next hop on its route across the network.





**Destination:** The IP address of the packet's final destination. The destination can be an IP address or a class-based, sub-netted, or super-netted network ID.

**Gateway:** The IP address to which the packet is forward.

**Netmask:** Includes directly-attached subnets, indirect subnets that are not attached to the device but can be accessed through one or more hops, and default routes to use for certain types of traffic or when information is lacking.

**Flags:** Possible flags include → **U**: Route is up. **H**: Target is a host. **G**: Use Gateway

**C**: Cache entry **!**:Reject route

**Metric:** A number used to indicate the cost of the route so that the best route, among potentially multiple routes to the same destination, can be selected.

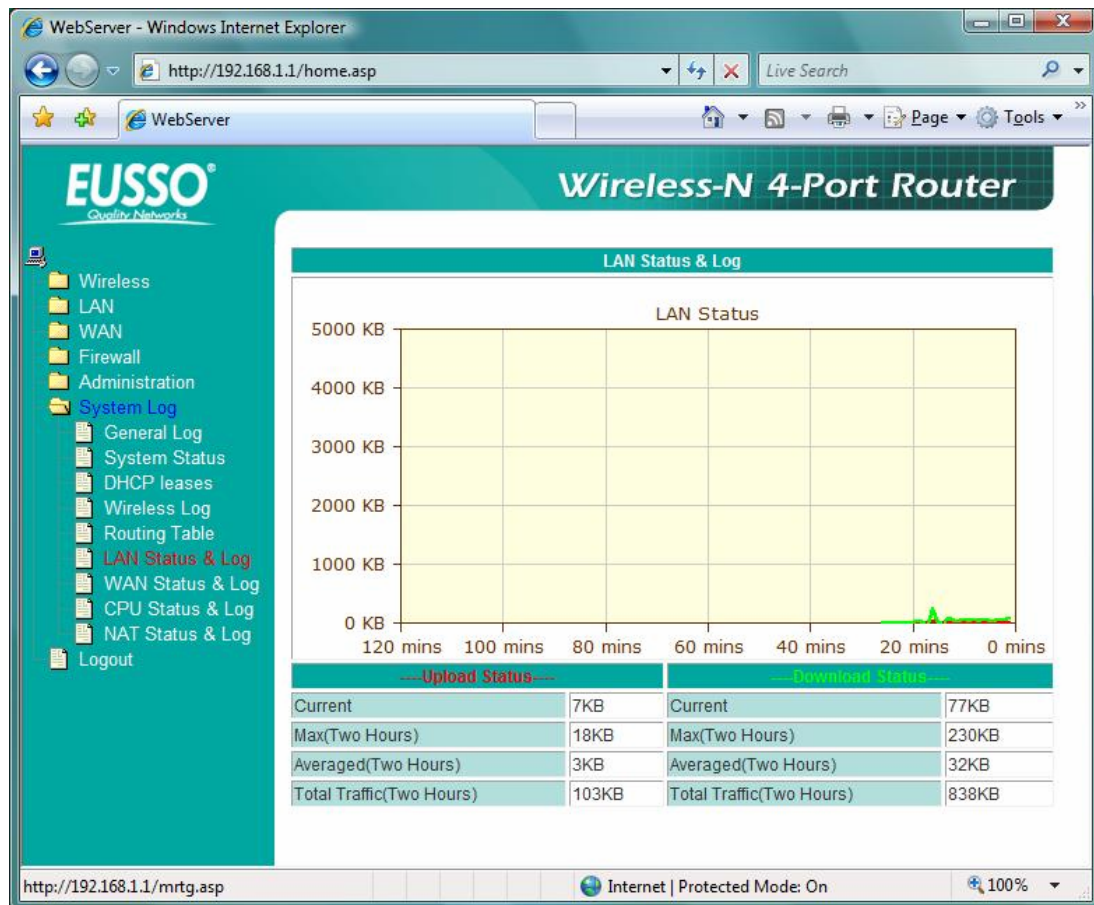
**Ref:** Number of reference to this route.

**Use:** Count of lookups for the route.

**Iface:** Interface to which packets for this route will be sent.

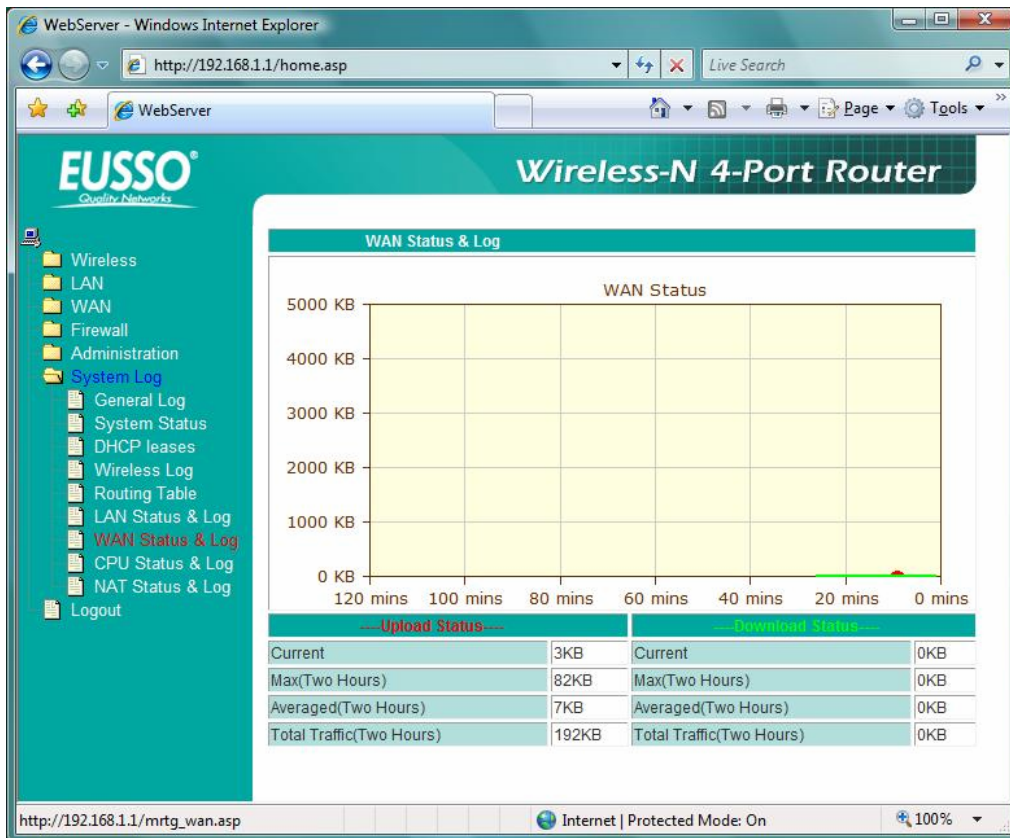
### 3.7.6 LAN Status & Log

This section shows Router's LAN Status (Upload/Download Status) and Log chart.



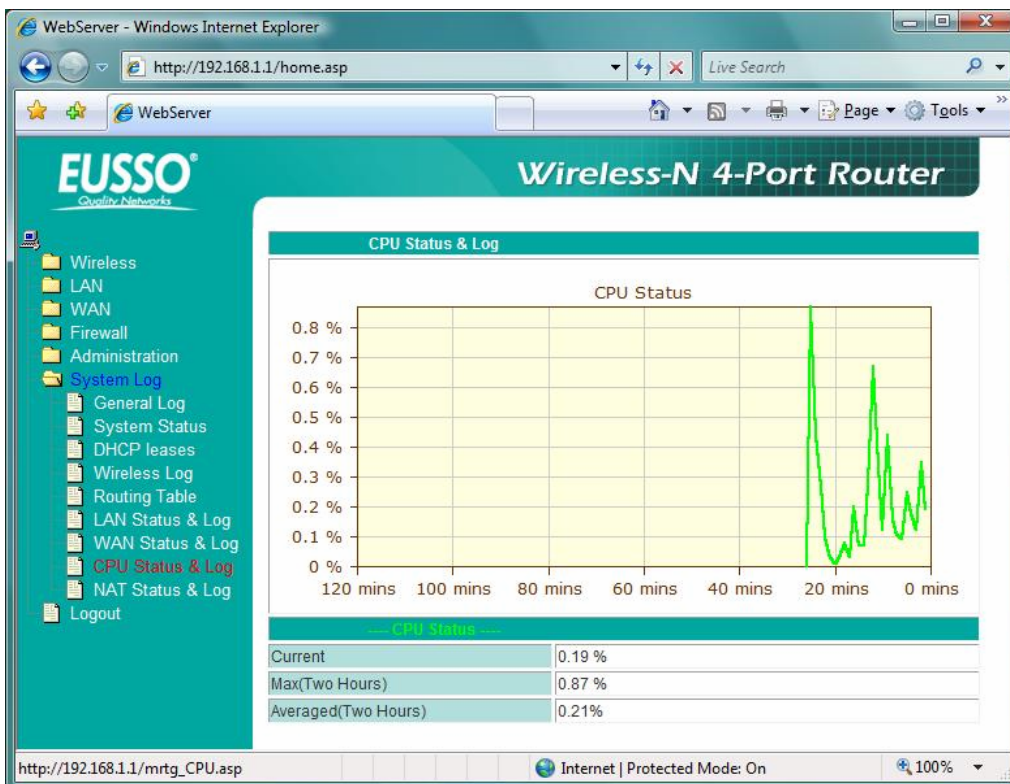
### 3.7.7 WAN Status & Log

This section shows Router's WAN Status (Upload/Download Status) and Log chart.



### 3.7.8 CPU Status & Log

This section shows Router's CPU Status (current/Maximum/Average status) and Log chart.



### 3.7.9 NAT Status & Log

This section shows Router's CPU Status (current/Maximum/Average status) and Log chart.

